

**THE IMPACT OF SELECTED HOME ENVIRONMENT FACTORS ON PRIMARY  
SCHOOL LEARNER'S ACADEMIC PERFORMANCE – A CASE STUDY**

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## DEDICATIONS

*“Education is the most powerful weapon which you can use to change the world” ~ Nelson Mandela*

I dedicate this work to my Lord and Saviour Jesus Christ. To my loving and supportive husband Johan and son, Ryan who encouraged me to continue, supported me and been there every step of the way. You believed in me, encouraged me, prayed for me when I needed it. You were always willing to listen, to give advice and to help.

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*“Everyone can rise above their circumstances and achieve success if they are dedicated to and passionate about what they do” ~ Nelson Mandela*

*“The man who graduates today and stops learning tomorrow is uneducated the day after”. ~ Newton D. Baker*

### DECLARATION BY STUDENT

I, Sunet Nell, declare that the dissertation entitled, **“THE IMPACT OF SELECTED HOME ENVIRONMENT FACTORS ON PRIMARY SCHOOL LEARNER’S ACADEMIC PERFORMANCE – A CASE STUDY”** is my research, and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. The bibliography was shown to indicate the sources used or quoted. This work has not been submitted to any other university or educational institution for degree purposes. I further declare that I have submitted the thesis to originality checking software.

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## **ABSTRACT**

South Africa has a long and troubled educational history, from pre-colonial education to the fall of apartheid, and eventually the acquisition of equal education for all (Christie, 2006). Many changes took place during this transitional period in the democracy and liberation of the New South Africa by means of pupil-centred classrooms, Curriculum 2005 (Taylor, 1995) and Curriculum and Assessment Policy Statement (CAPS). Although numerous studies have been conducted internationally and in South Africa on underperforming in schools, the focus of this study is to ascertain the key elements of why learners underperform. The study's aim is to determine the influence of a learner's socio-economic situation on scholastic performance with references to nutrition, family structure, and parental support of learners in primary schools in Tshwane.

In this full dissertation, the researcher found that most of the selected home environmental factors had no significant impact on the selected learners. It was, however, found (as many research already proved) that diet and sleep did have an influence on primary school learner academic performance.

In presenting this argument, the theoretical framework, socio-constructivism learning theory, and Maslow's hierarchy of needs, were used, as socio-constructivism states that although biological factors are a requirement for basic development to emerge, socio-cultural factors are crucial for basic natural processes to develop. Vygotsky's socio constructivism theory indicates the uniqueness of the social environment and regards socio-cultural background as the primary and determining factor in the development of higher forms of human mental activity such as voluntary attention, intentional memory, logical thought, planning, and problem solving.

In conjunction with Vygotsky, Maslow's hierarchy of needs sets the foundation for this study as it states that in order for a being to move to the next level, the lower level of needs, need to be satisfied first.

The objectives of the study were: - to determine what the impact of selected home environment factors on primary school learners' academic performance is. To determine the relationship between poverty, family structure, and scholastic performance; to determine the influence of the type of dwelling on scholastic performance; to determine the influence nutrition have on a learners' scholastic performance; and to determine the influence sleep deprivation has on learners' academic performance.

The study used a quantitative approach, and the method included questionnaires that learners in Grade 5, Grade 6, and Grade 7 of the selected school completed anonymously.

The study revealed that poverty, family structure, and dwelling type did not have a significant impact on the learners of the selected school. The study did however reveal and confirmed what various other researchers have already found that sleep and nutrition did have an influence on academic performance.

It is recommended that specific guidelines should be provided to parents about economical lunchbox ideas. Parents should be supplied with lists of foods best to pack in lunchboxes and food that is not allowed. Schools should further monitor the food provided at tuck shops, as the food provided should be nutritious as well as sustain learners' energy. Food high in saturated fats and sugar should not be allowed at school tuck shops. Children should also be educated about nutrition and better or alternative choices they can make.

Lunches that are supplied as part of the school nutrition program should be monitored to ensure that it is nutritious, low in sodium, and that a variety of fruit and vegetables are included in the meal.

Studies have concluded that children should sleep on average nine hours per night. Unfortunately, due to increase in academic pressure and work load, more learners go to bed later. It is therefore recommended that schools adhere to guidelines on the amount of homework given to learners daily. It is further recommended that parents should ensure that their children have a set routine regarding sleep patterns. The use

of electronic equipment, such as television, computers, and cellular phones prior to sleeping time should be limited as it affects sleep.

Surprisingly, this study has also revealed that some of the data supplied to the school by the parents or guardians and the data that was obtained from the learners did not correlate. It is therefore recommended that schools should be more scrupulous with learner performance data as it could be a possible indicator of household problems or the quality of education. If it is found that the decline is due to quality of education, the school management team should act immediately to assist the necessary educators with the necessary skills to enable better quality of education.

A pro-active plan of action should be put in place by the school for those learners whose marks decreased. An educator could talk to the learner and the parents to try and determine the possible causes for the decrease in marks. Remedial classes or remedial exercises should be given to the learners to assist in the areas of need. In addition, if it is determined that the cause is due to home environment factors then necessary assistance should be provided either by the school or other entities.

# **KHUETŠO YA MABAKA AO A KGETHWILWEGO A TIKOLOGO YA GAE MO GO ŠOMENG DITHUTONG GA BARUTWANA BA DIKOLLO TŠA PRAEMARI – THUTONYAKIŠIŠO KAKARETŠO**

Afrika Borwa e na le histori ya thuto ye telele gape ya mathata, go tloga go thuto ya pele ga bokoloni go ya go go fedišwa ga kgatelelo le go hwetša mafelelong thuto ya go lekana go bohle (Christie, 2006). Go bile le diphetogo tše dintši nakong ye ya phetogo mo temokrasing le tokologong ya Afrika Borwa ye mpsha ka mokgwa wa diphapošiborutelo tše di nepišago morutwana, Lenaneothuto la 2005 (Taylor, 1995) le Setatamente sa Pholisi ya Lenaneothuto le Kelo (CAPS). Le ge go dirilwe dinyakišišo tše mmalwa ditšhabatšhabeng le mo Afrika Borwa ka ga go se šome gabotse dikolong, nepišo ya dinyakišišo ke go utolla mabaka a motheo ao a dirago gore barutwana ba se šome gabotse. Maikemišetšo a dinyakišišo ke go utolla khuetšo ya maemo a ekonomi le leago a barutwana go go šoma dithutong go lebeletšwe phepo, sebopego sa lapa le thekgo ya batswadi go barutwana ba dikollo tša praemari ka Tshwane.

Mo tesitheišeneng ye e feletšego, monyakišišo o hweditše e le gore bontši bja mabaka a tikologo ya gae ao a kgethwilwego ga a na khuetšo ye bohlokwa mo go barutwana bao ba kgethwilwego. Le ge go le bjalo, go hweditšwe e le gore (bjale ka ge go kgonthišetšwe ke banyakišišo ba bantši) go ja le go robala di na le khuetšo go go šoma dithutong ga barutwana ba dikollo tša praemari.

Ge go abja mabaka a, tlhako ya teori, teori ya go ithuta ya tsebo ya leago le dinyakwa tša maemo a Maslow di šomišetšwe. Tsebo ya leago e bolela gore le ge mabaka a go phela e le senyakwa sa kgolo ya motheo go thoma, mabaka a setšo sa leago a bohlokwa kudu go ditshepedišo tša tlhago tša motheo gore di gole. Teori ya Vygotsky ya tsebo ya leago e bontšha boswananoši bja tikologo ya leago gomme e tšea botšo bja setšo sa leago bjalo ka lebaka la motheo le taolo mo go godišeng mekgwa ya godimo ya mošongwana wa kgopolo ya motho go swana le šedi ya boithaopo, le kelelo ye e nepišago, kgopolo ya go kwagala, peakanyo le tharollo ya mathata.



Ka tirišano le Vygotsky, maemo a dinyakwa a Maslow a dira motheo wa dinyakišišo tše ka ge a bolela gore sebopiwa se ye legatong la go latela, legato la fase la dinyakwa le swanetše go kgotsofatšwa pele.

Dinepo tša dinyakišišo tše e be e le go utolla: gore khuetšo ya mabaka a tikologo ya gae ao a kgethilwego go barutwana ba dikolo tša praemari mo go šomeng gabotse dithutong ke efe; kamano gare ga bohloki, sebopego sa lapa le go šoma dithutong; khuetšo ya mohuta wa legae mo go šomeng dithutong; khuetšo yeo phepo e nago le yona mo go šomeng dithutong; le khuetšo yeo go se robale go nago le yona go barutwana mo go šomeng dithutong.

Dinyakišišo di šomiša mokgwa wa bokaakang, gomme mokgwa o akaretša letlakala la dipotšišo leo barutwana ba Kreiti ya 5, Kreiti ya 6 le Kreiti ya 7 ba sekolo seo se kgethilwego ba le tladitšego ka sephiri.

Dinyakišišo di utollotše gore bohloki, sebopego sa lapa le mohuta wa legae ga di na khuetšo mo go barutwana ba sekolo seo se kgethiwego. Le ge go le bjale, dinyakišišo di utolla le go kgonthiša ka moo banyakišiši ba go fapana ba šetšego ba hweditše gore boroko le phepo di na le khuetšo mo go šomeng dithutong.

Go digetšwe gore ditlhahli tše di itšego di swanetše go fiwa batswadi ka ga kgopolo ya dijo tša letena tša ekonomi. Batswadi ba swanetše go fiwa lenaneo la dijo tše dikaone go feta tšeo ba ka di fago bana go ja ka letena le dijo tšeo di se a lokago. Dikolo gape di swanetše go lekola dijo tšeo di fiwa mabenkeleng a dijo a ka sekolong, ka ge dijo tšeo di fiwago di swanetše go ba le phepo gomme di swarelele maatla a barutwana. Diho tšeo di nago le makhura ao a se a lokago le swikiri ga se tša swanela go dumelelwa mo mabenkeleng a dijo a ka sekolong. Go tlaleletša, bana ba swanetše go rutwa ka phepo le dikgetho tše kaone goba tša go fapana tšeo ba ka di dirago.

Dijo tša matena tšeo di fiwago bjalo ka karolo ya lenaneo la phepo la sekolo di swanetše go lekolwa go kgonthiša gore di na le phepo, ga di na letswai le lentši, le gore mehuta ya dienywa le merogo e a akaretšwa mo dijong.

Dinyakišišo di phethile ka gore ka palogare bana ba swanetše go robala diiri tše senyane bošego bjo bongwe le bjo bongwe. Go hloka mahlatse, ka lebaka la koketšego ya kgatelelo ya dithuto le mošomo wo montši, bana ba bantši ba robala ka morago ga nako. Ka gona go digelwa gore dikolo di latele ditlhahli tša bokaalo bja mošomo wa gae woo o fiwago barutwana letšatši le lengwe le lengwe. Go digetšwe gape gore batswadi ba swanetše go kgonthiša gore bana ba bona ba na le lenaneo leo le beakantšwego la go robala. Tšhomišo ya didirišwa tša elektroniki, go swana le thelebišene, dikhomphutha le diselefouno pele ga nako ya go robala e swanetše go fokotšwa ka ge e ama boroko.

Selo sa go makatša, dinyakišišo tše di utollotše gore data ye nngwe yeo e filwego sekolo ke batswadi goba bahlokomedi le data yeo e filwego ke barutwana ga di sepelelane. Ka gona go digelwa gore dikolo di swanetše go hlokomela ka data ya go šoma ga barutwana ka ge e ka ba sešupo sa kgonagalo ya mathata a ka gae goba boleng bja thuto. Ge go hweditšwe gore go palelwa ke ka lebaka la boleng bja thuto, sehlopha sa taolo ya sekolo se swanetše go tšea magato ka bjako go thuša barutiši ka mabokgoni ao a hlokegago go kgonthsha boleng bjo bokaone bja thuto.

Sekolo se swanetše go dira lenaneo la tiro la mohola go barutwana bao meputso ya bona e fokotšegile. Morutiši a ka bolela le morutwana le batswadi go leka go utolla gore ke eng seo se hlolago go fokotšega ga meputso. Dithuto tša tlaleletšo goba mešongwana ya tlaleletšo e swanetše go fiwa go thuša barutwana mo dikarolong tšeo ba hlokgago thušo. Go tlaletša, ge go utollotšwe gore se se hlolwa ke mabaka a tikologo ya gae, gona go swanetše go fiwa thušo yeo e hlokegago e ka fiwa ke sekolo goba makala a mangwe.

# **DIE UITWERKING VAN GESELEKTEERDE TUISOMGEWINGFAKTORE OP DIE AKADEMIESE PRESTASIE VAN PRIMÊRESKOOLLEERDERS – 'N GEVALLESTUDIE**

## **OPSOMMING**

Suid-Afrika het 'n lang en veelbewoë onderwysgeskiedenis, van voorkoloniale onderwys tot die val van apartheid en die uiteindelijke bereiking van gelyke onderwys vir almal (Christie, 2006). Baie veranderinge het gedurende hierdie oorgangsperiode in die demokrasie en bevryding van die Nuwe Suid-Afrika plaasgevind deur middel van leerdergesentreerde klaskamers, Kurrikulum 2005 (Taylor, 1995) en die Kurrikulum- en Assesseringsbeleidsverklaring (KABV). Hoewel talle studies oor onderprestasië in skole internasionaal en in Suid-Afrika uitgevoer is, is die fokus van hierdie studie om die kernfaktore vas te stel wat tot onderprestasië van leerders lei. Die studie het ten doel om die invloed van 'n leerder se sosioëkonomiese situasie op skoolastiese prestasië te bepaal met verwysing na voeding, gesinstruktuur en ouerondersteuning van leerders in primêre skole in Tshwane.

In hierdie volledige proefskrif het die navorser bevind dat die meeste geselekteerde tuisomgewingsfaktore geen beduidende uitwerking op die geselekteerde leerders gehad het nie. Daar is egter bevind (soos deur baie navorsers bewys is) dat dieet en slaap wel 'n invloed op primêreskoolleerders se akademiese prestasië gehad het.

In die aanbieding van hierdie argument is die teoretiese raamwerk, sosiaal-konstruktivistiese leerteorie en Maslow se behoeftehiërargie gebruik. Sosiaalkonstruktivisme bepaal dat, hoewel biologiese faktore 'n vereiste is sodat basiese ontwikkeling kan plaasvind, sosiaalkulturele faktore deurslaggewend vir die ontwikkeling van basiese natuurlike prosesse is. Vygotsky se teorie oor sosiaalkonstruktivisme dui op die uniekheid van die sosiale omgewing en beskou die sosiaalkulturele agtergrond as die primêre en bepalende faktor in die ontwikkeling van hoër vorms van menslike verstandelike aktiwiteit, soos vrywillige aandag, intensionele geheue, logiese denke, beplanning en probleemoplossing.

Tesame met Vygotsky, maak Maslow se behoeftehiërargie die grondslag van hierdie studie uit, aangesien dit bepaal dat, ten einde na die volgende vlak te beweeg, 'n mens se laer vlak van behoeftes eers bevredig moet word.

Die doelwitte van die studie was om die volgende te bepaal: watter uitwerking geselekteerde tuisomgewingfaktore op primêreskoolleerders se akademiese prestasie het; die verhouding tussen armoede, gesinstruktuur en skolasiese prestasie; die invloed van die tipe woning op skolasiese prestasie; die invloed wat voeding op 'n leerder se skolasiese prestasie het; en die invloed wat slaapontneming op 'n leerder se akademiese prestasie het.

Die studie het 'n kwantitatiewe benadering gebruik, en die metode het vraelyste ingesluit wat leerders in Graad 5, Graad 6 en Graad 7 van die geselekteerde skool anoniem voltooi het.

Die studie het aan die lig gebring dat armoede, gesinstruktuur en tipe woning nie 'n beduidende uitwerking op die leerders van die geselekteerde skool gehad het nie. Die studie het egter wel aan die lig gebring en bevestig wat verskeie ander navorsers reeds bevind het: dat slaap en voeding 'n invloed op akademiese prestasie het.

Daar word aanbeveel dat spesifieke riglyne oor ekonomiese kosblik-idees aan ouers verskaf moet word. Ouers behoort voorsien te word van lyste van die beste kossoorte om in kosblikke te pak, en kossoorte wat nie toegelaat word nie. Skole behoort voorts die kos te monitor wat by snoepwinkels te koop aangebied word, aangesien sodanige kos voedsaam moet wees en leerders se energie moet volhou. Kos wat ryk aan versadigde vette en suiker is, behoort nie by skoolsnoepwinkels toegelaat te word nie. Daarbenewens behoort kinders opgevoed te word oor voeding en beter of alternatiewe keuses wat hulle kan maak.

Middagetes wat as deel van die skoolvoedingsprogram voorsien word, moet gemonitor word om te verseker dat hulle voedsaam en laag in sout is, en dat 'n verskeidenheid vrugte en groente by die maaltyd ingesluit word.

Studies het tot die slotsom gekom dat kinders gemiddeld nege uur per nag behoort te slaap. Ongelukkig, weens 'n toename in akademiese druk en werklading, gaan al hoe meer leerders later slaap. Daar word dus aanbeveel dat skole riglyne nakom rakende die hoeveelheid huiswerk wat daaglik aan leerders gegee word. Daar word verder aanbeveel dat ouers moet verseker dat hul kinders 'n vaste slaaproetine het. Die gebruik van elektroniese toerusting, soos televisie, rekenaars en selfone voor slaaptyd, behoort beperk te word omdat dit slaap beïnvloed.

Dit is verrassend dat die studie ook aan die lig gebring het dat sommige van die data wat deur die ouers of voogde aan die skool verskaf is en die data wat van die leerders bekom is, nie ooreengestem het nie. Daar word dus aanbeveel dat skole meer nougeset met leerderprestasiedata moet omgaan, aangesien dit 'n moontlike aanwyser van huishoudelike probleme of die gehalte van onderwys kan wees. Indien daar bevind word dat die afname as gevolg van die gehalte van onderwys is, moet die skoolbestuurspan onmiddellik optree om opvoeders te help om die nodige vaardighede te verwerf om 'n beter gehalte onderwys moontlik te maak.

Die skool behoort 'n proaktiewe plan van aksie in werking te stel vir daardie leerders wie se punte gedaal het. 'n Opvoeder kan met die leerder en die ouers gesels en probeer vasstel wat die moontlike oorsake vir die daling in punte is. Remediërende klasse of remediërende oefeninge behoort aan die leerders gegee te word om met die behoefteareas te help. Daarbenewens, indien vasgestel word dat die oorsaak tuisomgewingfaktore is, behoort die nodige bystand gegee te word, hetsy deur die skool of ander entiteite.

## KEY TERMS

Academic Performance, Environment, Family Structure, Nutrition, Poverty, Primary Schools, Sleep, Socio-economic factors, Township, Types of schools.

## LIST OF ABBREVIATIONS

CAPS	Curriculum and Assessment Policy Statement
DBE	Department of Basic Education
DoE	Department of Education
GDoE	Gauteng Department of Education
ECD	Early Childhood Development
IQMS	Integrated Quality Management System
GPLMS	Gauteng Primary Language and Mathematics Strategy
LoLT	Language of Learning and Teaching
NSNP	National School Nutrition Program
NSES	National School Effective Study
PIRLS	Progress in International Reading Literacy Studies
SBA	Standard Based Accountability
SES	Socio-economic Situation
TIMSS	Trends in International Mathematics and Science Studies
WHO	World Health Organisation

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## CHAPTER 1: ORIENTATION

### 1.1 INTRODUCTION AND BACKGROUND TO THE RESEARCH

*“Education is the most powerful weapon which you can use to change the world”*  
(Mandela, 2013).

South Africa has a long and troubled educational history, from pre-colonial education (Christie, 2006:30-51), to the fall of apartheid and eventually the acquisition of equal education for all (Christie, 2006:301-309). Therefore, Government has done a lot to eradicate the injustice of the past and to ensure that every child in South Africa has access to equal education and that all schools use the same curricula.

In order to eradicate the past injustices, the Gauteng Department of Basic Education committed itself immediately to the intervention and support strategy to assist those schools who were previously disadvantaged in the form of the Gauteng Primary Language and Mathematics Strategy (GPLMS) programme, with the main goal of the GPLMS (2010-2014) being to improve Language and Mathematics levels in primary schools in the province to ensure that the presidential target of 60% was attained by 2014. Its focus was the identified 792 schools that received immediate intervention and support (Department of Basic Education, 2011). The Department of Basic Education further strengthened its commitment to improving the overall performance of learners through supplying lesson and teaching plans in Mathematics and Science and Technology, improving school infrastructure and offering support to the school through Departmental visitations, training, and continued monitoring and support, by providing qualified educators to school and the national school nutrition program. These initiatives form the basis of the Five Year Plan till 2019 (Department of Basic Education, 2016).

Learners showed no learning advancement in reading, writing, and Mathematics according to the 2002 Trends in International Mathematics and Science Studies (TIMSS) results (Reddy, Zuze, Visser, Winnaar, Juan, Prinsloo, Arends & Rogers, 2015). It was also mirrored in the 2015 TIMSS results, in which South Africa positioned 59 of the 60 countries tested. However, this indicated an improvement of 90 points in

science and 87 points in Mathematics which was an overall positive upward improvement of two grade levels between 2003 and 2015 (Reddy, Visser, Winnaar, Arends, Juan & Isdale, 2016).

The researcher is currently an educator at a primary school in Tshwane and was part of the Gauteng Primary Language and Mathematics Strategy (GPLMS) programme, working within nine allocated schools within the Hammanskraal and Temba areas, informal settlements (to the North of Tshwane). The socio-economic situations of all of the schools were almost similar: these schools are non-school fee paying schools, which implies that Government is supporting these schools, all the educators at these schools are faced daily with diverse poverty, large classes (some schools have a ration of to one educator to 57 learners) and minimum resources – including shortages raging from text books to stationary. The Language of Learning and Teaching (LoLT) is an African language and English is presented on First Additional Language level.

The researcher, working in previously disadvantaged areas and currently working in a former Model C school in a suburb in Tshwane, where there are mostly learners from disadvantaged areas, was faced with many learners not achieving to their full potential. The learners' attending the school were mostly from township areas situated around Tshwane and the demographics were very similar to those of the schools were the researcher worked previously, except for the fact that they were being transported to the school situated in town and did not attend a school in close proximity to their houses. The socio-economic factors of learners, such as home environment, the type of dwelling learners' reside in, nutrition, and sleep, may be key elements to learner performance.

Various studies were conducted, both nationally and internationally, in countries such as Britain, America, and Australia on the socio-economic impact and reasons why learners underperform in schools (Muijs, 2010; Leithwood, 2010; Mahuteau & Mavromaras, 2013). In most studies, the focus was on school management and teachers, but in a study conducted by Ford (2013:93-94), the impact of a learners' socio-economic status (SES) on academic achievement was studied and the impact and positive influence of a learners' family structure had on performance regardless of SES.

In spite of numerous studies being conducted, not much literature to ascertain the impact of home environment factors on primary school learner performance could be found.

The findings of this study could shed light and provide insight on the impact of selected home environment factors on primary school learners' academic performance and whose finding might help inform specific actions to be taken to professionally and successfully address learner performance.

This study would not only assist the Department of Basic Education and School Management Teams of schools in previously disadvantaged areas, but also former Model C schools who had an influx of learners from the township areas to improve their level of performance. The findings could also lay the foundation for strategies to guide educators on how to improve primary school learners' academic performance. The findings may add to the existing body of scientific knowledge in education and may lead to the development and implementation of strategies to overcome challenges of primary school children performance.

## **1.2 THEORETICAL FRAMEWORK**

The theoretical framework serves as an appraisal tool for research. The theoretical framework is essential in applied quantitative studies, especially when researching a problem that has been extensively studied and can show a logical link between questions and methodology (McMillan & Schumacher, 2014:86). The theories of Maslow and Vygotsky underpin this study.

Maslow's hierarchy of needs (Maslow, 1943:370-396) sets the foundation for this study as it states that, in order for an individual to progress to the next level, the lower level of needs must to be fulfilled first. If the lower level of need is not satisfied, the urge to fulfil that need will become more intense, the longer it is unfulfilled. Unfortunately, progress from one need to the next is often interrupted by failure to meet the lower level of needs through socio economic factors or trauma, and may cause an individual to fluctuate between the levels of the hierarchy. This hierarchy ranges from safety and security which are lower-level needs to self-actualisation, which is a higher-level of

needs for intellectual achievement. Self-actualisation is the attainment of personal potential (Maslow, 1943:370-396).

In addition, Maslow's hierarchy of needs assists in looking at the learner as a whole, who's physical, emotional, and intellectual needs are all interrelated. Woolfolk (2007:375) states that once Maslow's deficiency needs i.e. the four lower level needs for survival, safety, belonging, and self-esteem are satisfied, the motivation for fulfilling them decreases. The three higher level needs, intellectual achievement, aesthetic appreciation, and self-actualisation increase to seek further fulfilment when they are met. However, the deficiency needs will never be completely fulfilled (Woolfolk, 2007). Vygotsky's constructivism theory (Vygotsky, 1978) provides reflection to both the psychological and social contexts in which a learner learns and achieve. It stresses the importance of social interactions as being essential to the learners' learning.

Brown, Ford, Magnuson, Marano & Palincsar (1998) state that Vygotsky was of the notion that human activities take place in cultural milieu and cannot be understood apart from these settings. Our interactions with others are the results of our specific mental structures and processes. These social interactions influences and actually creates our cognitive structures and thinking processes. Cobb and Bowers (1999) affirm Vygotsky's notion that learning is innately social and entrenched in a particular cultural setting (Woolfolk, 2007), hence the basis of this study. The theoretical framework will be discussed in detail in Chapter 2.

### **1.3 LITERATURE REVIEW**

Grounded in the framework of Maslow's hierarchy of needs (Maslow, 1943) and Vygotsky's Constructivist Theory (Vygotsky, 1978) the study sets out to examine the impact of home environment factors on primary school learners' academic performance. The aim of the research was to shed light on the underpinnings of academic underperformance of learners from a selected group of primary school learners in Tshwane and illustrate the impact that a learners' socio-economic status has on scholastic performance, with references to nutrition, family structure, home environment, and sleep. These concepts are discussed in detail in Chapter 2.

Key words used in this study can be defined as follows:

### **1.3.1 Township**

The South African Treasury Department states that no formal description of the term “township” exists, but that it is generally understood to refer to the underdeveloped metropolitan, residential areas that were reserved and where non-whites (Africans, Coloured and Indians) resided near or worked in areas previously designated for “whites only” during the Apartheid area (under the Black Communities Act (Section 33) and Proclamation R293 of 1962, Proclamation R154 of 1983 and GN R1886 of 1990 in Trust Areas, National Home lands and Independent States) (Pernegger, 2007).

### **1.3.2 Home environment**

For this study home-environment would be defined as the physical structure that a learner resides in. This also encompasses the following – family structure, socio-economic status, distance from school, and diet and nutrition. These factors are out of a learners control as the learner is born into a family structure and socio-economic state (Woodhead, 2006). Woodhead (2006) further stated that “a child’s early development is influenced and shaped by human action – including social and cultural processes”.

### **1.3.3 Socio-economic factors**

Santrock (2004:583) defines socio-economic factors as “the grouping of people with similar occupational, educational, and economic characteristics”. Woolfolk (2007:165) in turn defines socio-economic situation (SES) as a person’s comparative position in society based on income, power, background, and status. She continues to argue that every researcher will define socio-economic situation different based on the character of the study.

The key elements that are the foci of this study are elements that the learner has no control over such as family structure, the influence of nutrition on a learner’s scholastic



performance, poverty, and sleep. These concepts will be further discussed in Chapter 2.

#### **1.3.4 Primary Schools**

The duration of primary schooling in South Africa spans from Grade 1 to 7 (Department of Basic Education, 2009). This means that the suitable age of learners for primary education is between seven and thirteen years old. However, there may be learners that exit primary schooling beyond this age of 13 years due to repetitions of a grade in either or both the foundation (Grades 1 – 3) and/or Intermediate (Grades 4 – 6) Senior Phase (Grade 7). Learners repeat a grade when the minimum requirements as set out in the National Policy Pertaining to Promotion and Retention (NPPPR) are not met (Department of Basic Education, 2012).

#### **1.3.5 Types of schools**

Schools in South Africa are grouped into school districts, based on the geographical boundaries. The district offices are the link between the Provincial Departments of Education and the schools which they administer. Currently there are 86 districts in South Africa. Unlike districts, which in many cases follow prescribed administrative boundaries such as District Municipalities, circuits have no defined boundaries. They usually consist of a geographically proximate group of schools. This may result in a homogeneous circuit such as a group of former Model C schools in an urban area that require relatively little direct support. It could also mean a dispersed group of rural schools, with poor infrastructure and difficult access roads that are underperforming in many respects (Department of Basic Education, 2015: 23).

### **1.4 PROBLEM STATEMENT**

After the GPLMS project was completed the researcher was employed by a primary school in Tshwane – a former Model C school that changed from Afrikaans LoLT to an English LoLT.

As with all schools, District Officials visit schools regularly to ensure compliance to Policy, Assessment, and Curriculum Delivery. Workshops and District training sessions are also held to enhance the quality of teaching and learning.

During the researcher's time working within the classified underperforming schools, it was observed that the blame of underperformance cannot purely be placed at the feet of educators and school management, as there are teachers working passionately and tirelessly to teach children from previously disadvantaged areas and the school management of some schools were very effective.

These observations initiated the thought process regarding the impact of home environment factors on primary school learner performance.

Underperforming is neither a new phenomenon, nor a unique South African problem (Armstrong, Gustafsson, Spaull, Taylor & Van der Berg, 2011; Heystek & Terhoven, 2014; Heystek; 2015; Stephens, 2010). Vygotsky's constructivist theory suggested that learners' learning was influenced by their social interactions (Schunk, 2004 in Ford, 2013) and Maslow's hierarchy of needs assist in looking at the learner as a whole, whose physical, emotional, and intellectual needs are all interrelated (Woolfolk, 2007:375). It was therefore necessary to understand the underpinnings and the impact of selected home environment factors on primary school performance.

The relationships of the selected home environment factors on a primary school learner's academic performance need to be examined so that educational practitioners respond to the underlying issues that are impacting academic performance of learners in primary schools.

The research questions are grounded in the conceptual framework and based on the stated purpose of this study. The following research question and sub-questions will guide this study.

The problem statement to this study is:

What is the impact of selected home environment factors on primary school learners' academic performance?

Sub-questions of this study are:

- Is there a relationship between poverty and scholastic performance?
- Is there a relationship between family structure and scholastic performance?
- What is the influence of the type of dwelling on scholastic performance?
- What influence does nutrition have on a learners' scholastic performance?
- Does sleep deprivation have a noticeable influence on learners' academic performance?

## **1.5 AIM AND OBJECTIVES**

Grounded in the theoretical framework of Maslow's hierarchy of needs and Vygotsky's Constructivist Theory, the study sets out to examine the impact of home environment factors on primary school learner performance.

The aim of the research was to shed light on the impact of selected home environment factors on primary school learner performance.

These objectives were:

- To determine the relationship between poverty and scholastic performance.
- To ascertain the relationship between family structure and scholastic performance.
- To determine the influence of the type of dwelling on scholastic performance.
- To determine what influence nutrition has on a learner's scholastic performance.
- To determine if sleep deprivation has a noticeable influence on learners' academic performance.

## **1.6 RESEACH METHODOLOGY**

McMillan & Schumacher (2014:16) define research methodology as the systematic and purposeful process of accumulating and analytically analysing data for some purpose. It is further stated that the procedures are not aimless and are planned to yield data on a particular research problem. The term methodology refers to a “design whereby the researcher selects data collection and analysis procedures to investigate a specific research problem” (McMillan & Schumacher, 2014:16). In this section, the research design, research paradigm, research approach, and research strategy will be discussed, as well as the research method and population and sampling. The research methodology for this study is a quantitative study.

### **1.6.1 Research Design**

Deport and Roestenburg (in De Vos, Strydom, Fouché & Delport (2011:171) refer to the research design as the “plan, recipe or blueprint for the investigation, as such provides a guideline according to which selection can be made of which data-collection method(s) will be most appropriate to the researcher’s goal and to the selected design” (De Vos, Strydom, Fouché, & Delport, 2011). De Vos (1998:6) further states that research serves the practical function of providing situation-specific data to inform action about practice, the operations of programmes, or efforts to achieve social change.

It can further be described as the procedures for conducting the study, including when, from whom, and under what conditions the data will be obtained (McMillan & Schumacher, 2014:28).

Descriptive research was used to discover, explain, and document aspects of a phenomenon in a real-life situation (Polit & Beck, 2012:226).

The purpose of a research design is to identify a plan for generating empirical evidence that will be used to answer the research questions (McMillan & Schumacher, 2014:28). This confirms Thyer’s (1993:94) view that a research design is a blue-print or detailed plan on how to conduct a research study.

The research design for this study is a descriptive and interpretive case study that is investigated through a quantitative research approach. The aspects that will be addressed in this study are the research paradigm, research approach, and research strategy.

#### 1.6.1.1 Research Paradigm

“A paradigm is a set of beliefs that constitutes the researcher’s ontology (i.e. the researcher’s perceptions regarding the nature of reality or the world and what there is to know about it); epistemology (i.e. the researcher’s perceptions of where he stands in relation to reality of the world) and methodology (i.e. the researcher’s perception of how to find out about reality or the world)” (De Vos, 1998:240).

This study was perceived in the social constructivism paradigm, as it “relies on the social interactions and cultural context to explain learning” (Woolfolk, 2007:346). Olsen, Lodwick, and Dunlap (1992) are of the view that a person’s worldview is cognitive, perceptual, and people continuously use affective maps to make sense of the social setting and to find their ways to whatever goals they seek. These worldviews are developed throughout a person’s lifetime through socialisation and social interaction.

This strengthened Vygotsky’s believes that social interaction, cultural tools, and activity, shape individual development and learning (Woolfolk, 2007:346). Cobb and Bowers affirm Vygotsky’s notion that learning is inherently social and embedded in a particular cultural setting (Woolfolk, 2007:347).

Bruning, Shraw, Norby and Ronning (2004:195) state that “most constructivist share two main ideas: that learners are active in constructing their own knowledge and that social interactions are important to knowledge construction”. This idea is strengthened by the definition of Ormrod, Schunk, and Gredler (2009) that it is a philosophy of learning founded on the argument that, by reflecting on our experiences, we construct our own understanding of the world we live in. Every individual generates their own "rules" and "mental models," which is used to make sense of their experiences.

Learning, therefore, is simply the process of changing one's mental models to accommodate new experiences (Ormrod, Schunk & Gredler, 2009).

#### 1.6.1.2 Research Approach

The research approach followed in this study by the researcher is one of a quantitative approach.

Babbie (2010) and Muijs (2010) define quantitative research methodology as methods that highlight objective measurements and the statistical, mathematical, or numerical analysis of data collected by making use of polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research is a method that either gathers numerical data to generalize it across groups of people or to explain a particular phenomenon.

McMillan & Schumacher (2014:5) further define a quantitative research approach as the process where objective data are accumulated, analyzed, and described numerically. It emphasizes objectivity in measuring and describing phenomena and, as a result of such, the design maximises impartiality by using numbers, statistics, structure, and control.

Quantitative research designs are experimental or non-experimental. This study will be done within the socio constructivist paradigm and will be non-experimental as it describes phenomena and relationships between different phenomena without any direct manipulation of conditions that are experienced (McMillan & Schumacher, 2014:30).

The socio constructivist, Vygotsky, was of the notion that human activity takes place in cultural settings and cannot be understood apart from these settings. These social interactions are more than the influences on cognitive development – it creates our cognitive structures and thinking process (Brown, Ford, Magnuson, Marano & Palincsar, 1998). John-Steiner and Mahn (1996:192) state that Vygotsky conceptualized development as the transformation of socially shared activities into internalised processes and that social interaction was more than influence, was the

source of higher mental processes such as problem solving (John-Steiner & Mahn, 1996). Children's cognitive development is fostered by interactions with people who are more capable or advanced in their thinking – people such as parents and teachers (Moshman, 1997; Palincsar, 1998).

The respondents are no strangers to the researcher as they are all from the school where the researcher is teaching. The researcher is therefore in a position to interpret the quantitative data according to the socio constructivism theory.

#### 1.6.1.3 Research Strategy

For this study the researcher chose a case study, by making use of a survey to enable the researcher to obtain, as much as possible, information from the learners. Yin (2009) states that a case study strives to describe, analyse and interpret a particular phenomenon. This notion is strengthened by Swanborn (2010:3) which states a researcher collects information by studying the characteristics of those people who are involved in the same case and their relationship.

A survey is where the researcher asks respondents questions in a written questionnaire, and then records the answers (McMillan & Schumacher, 2014:253). It is a process for collecting, recording, and analysing data that could involve a wide variety of data collection methods, including a questionnaire. It could also involve observing or measuring things that go beyond questions, including physical measurements, judgments by a researcher, or analyses of other existing data.

A survey was used to obtain information about the prevalence, distribution, and interrelations to determine the impact of home environment factors on primary school learners' academic performance. The respondents completed and responded to a series of questions to collect information on variables of interest.

According to Neuman (1997:31), surveys give the researcher a picture of what many people think or report doing.

## **1.6.2 Research Methods**

McMillan and Schumacher (2014:16) define research methods as the ways in which one collects and analyses data. These methods have been developed for accumulating knowledge reliably and validly. Data collection may be done by making use of measurement techniques, extensive interviews and observations, or a set of documents (McMillan & Schumacher, 2014). It is further stated by McMillan and Schumacher (2014) that in order to discover patterns, the theories and hypothesis must be tested, and by means of exposing and relying on the best set of explanations, one can understand the results.

### **1.6.2.1 Population and Sampling**

A primary school situated in Tshwane was used for this study. This primary school was selected by means of purposive sampling. In purposive sampling the researcher selects particular elements from the population that will be representative about the topic of interest (McMillan & Schumacher, 2014:152). The school that was selected is a former Model C school. The school's LoLT was Afrikaans, but due to the demographical change in the area around the school, and the number of learners that had Afrikaans as LoLT declining, the School Governing Body (SGB) was forced to change the LoLT to English and the number of learners started to increase. Although there are still a few learners residing in the areas around the school, most learners attending the school are residing in previously deprived areas/ informal settlements to the North, East, and West of the City and travel to school by means of transport. Since the LoLT was changed to English Home Language, the learner enrolment numbers increased.

According to the 2015 Department of Basic Education EMIS Master file, there are 582 schools in the Tshwane Metropolitan Area. Of these, 465 are Government or State owned schools, 326 are Intermediate and Primary schools and 207 are schools in the traditional informal settlements to the North, East, South, and West of the City (Department of Basic Education, 2015).



The research is designed so that information about a large number of people (the population) can be inferred from the responses obtained from a smaller group of respondents (the sample) (McMillan & Schumacher, 2014:31).

For this study Grade 5, 6, and 7 children from a city school, where most of the learners are from previously disadvantaged areas, were used. There were 61 boys and 89 girls involved in this study, 150 respondents in total. The ethnic backgrounds of these learners are mostly African, 138 African learners, six White learners, four Coloured learners, and two Indian learners.

The Socio-economic status of these learners differ as some are residing in areas in close proximity to the school, while others are residing in previously disadvantaged areas around the city and travel to school. The family statuses of these learners also differ as there are parent families and single parent families, as well as children living with relatives.

Respondents are the individuals who participate in the study, and from whom data are collected. The selected respondents reside in the residential areas around the school and informal settlement areas to the North, East, and West of Tshwane with lower socio-economic circumstances. Although most of the learners in the school are African, the study will also include coloured, Indian, and White learners. De Vos (1998:191) states that the sample is studied by the researcher in an attempt to understand the population from which the sample was drawn.

On the basis of the researcher's knowledge of the population, a judgment was made about which respondents should be selected to provide the best information to address the purpose of the research (McMillan & Schumacher, 2006:126).

It was decided to use the Grade 5, 6, and 7 learners to complete questionnaires, as it is more representative of the ethnography of the schooling environment.

### 1.6.2.2 Data Collection

Quantitative measurement uses some type of instrument or device to acquire numerical indices that correspond to characteristics of the subjects (McMillan & Schumacher, 2014:189). Data will be collected by making use of a questionnaire. McMillan and Schumacher (2006:194) further state that questionnaires are the most widely used technique for acquiring information from respondents and it is relatively economical and can ensure anonymity, and that questionnaires can use statements or questions, but in all cases the respondent is responding to something written for specific purposes (McMillan & Schumacher, 2014:211). The researcher does not manipulate the situation.

Questionnaires were used to evaluate the home environment factors on a learners' academic performance and to determine the impact of selected socio-economic factors at the end of the case study. Neuman (2011:8) emphasises that "social research intends to find answers for questions about the social world". However, the research relies on scientific processes and evidence. A sub-classification of non-experimental designs is a survey research design as a questionnaire will be used to describe attitudes, beliefs, opinions, and other types of information (Neuman, 2011). Respondents from the sample school will complete ethnographic questions for statistical purposes as well as answering open and closed-ended questions in a questionnaire. In the closed form format, respondents choose between predetermined responses, or an open form, in which the respondents write in any response they want (McMillan & Schumacher, 2006:197).

Personal questionnaires that were designed by the researcher will be used. Questions were compiled based on observations made by the researcher and from literature. The statistician evaluated the applicability of the questions. A pre-test was conducted, with three Grade 5 learners, three Grade 6 learners, and four Grade 7 learners from the pilot school who were leaving the school and are not part of the respondents. Personal questionnaires are described as questionnaires that is handed to the respondents who completes it on his/her own (De Vos, 1998:154), but the researcher is available in case problems are experienced.

A meeting was also scheduled to inform the Grade 5, 6, and 7 teachers. The learners will be asked to complete all the questions. The Grade 5, 6, and 7 learners will complete the questionnaires in separate rooms as the questions were personal and could have provoked emotional responses. The children will be observed for emotional distress. The researcher will limit her own contribution to the completion of the questionnaire to the absolute minimum, remained in the background and only encouraged the respondents with a few words to continue with their contribution or lead them back to the subject.

#### 1.6.2.3 Data Analysis

After the questionnaires were completed, the data was statistically analysed to measure and describe phenomena. Monette, Sullivan & De Jong (2008:318) view statistical analysis as procedures for collecting, organising, tabulating and summarising numerical data to obtain meaning or information. Once the quantitative data was entered in an excel spreadsheet, the expertise of a statistician was utilised to help with the analysis of the data. The numerical values were then summarised and reported as the results of the study (McMillan & Schumacher, 2014:189). This validates De Vos (1998) that basic data analysis requires that the statistician break down the data into components to acquire answers to the research questions to test research hypotheses.

The analysis of research data, however, does not in itself provide the answers to research questions. Interpretation of the data is necessary. To interpret is to explain, to find meaning (Kerlinger, 1986). Data was summarised, described and organised in accordance with the objectives of the study. The research will furthermore be supported by figures and graphs. Miles and Huberman (1994:10) regards data analysis as actually consisting of three steps, namely data reduction, data display, and verification.

### 1.7 VALIDITY AND RELIABILITY

Validity is defined by Salkind (2006:113) as truthfulness, accuracy, authenticity, genuineness, and soundness as synonyms which describes what validity is all about.

Babbie (2010:176) states that validity refers to the extent to which an empirical measure effectively reveals the real meaning of the idea under consideration. Research involves making conclusions about unobservable mental states and about what interventions represent. Delport and Roestenburg (in De Vos, 2011:173) state that validity roughly refers to the degree to which an instrument accomplishes what it is intended to do – and an instrument may have several purposes which vary in number, kind, and scope. In this study, the data was collected by means of the instrument – a questionnaire was used to establish its criteria and construct validity.

Construct validity is defined as the extent to which the instrument measures the idea under enquiry (Polit & Beck, 2012:723). The questionnaire was devised from the literature and the statistician checked the face and content validity of the questions. Factor analysis as defined by Grinnell and Unrau (2008:129) will be used as it is a procedure to determine from the data the number of underlying factors in a questionnaire, as it determines which items cluster together to measure a particular construct. The key factors that are in the questionnaire is family structure (primary caregiver, employment of caregiver, does the caregiver receive a grant, parenting styles of caregivers), dwelling type (and the accessibility of electricity and water in the dwelling), nutrition, and sleep patterns.

External validity refers to the generalisation of the results, and population external validity refers to the results of a study that can be generalised only to other people who have the same or similar characteristics of those used in the study (McMillan & Schumacher, 2014:127-129). This strengthens the notion of Leedy (2001) that external validity refers to the degree to which the results acquired during the study can be generalised to other contexts.

When looking at validity during a research study, two aspects, internal and external validity need to be taken into consideration. Internal validity is the extent to which the instrument is measuring what it should, (Polit & Beck, 2012:244) to allow the researcher to draw accurate conclusions about the relationships within the data (Leedy, 2001). If the questionnaire was handed out to the same participants at another occasion, the same results should be obtained.

Bias is any condition or influence that misrepresents the data obtained (Leedy, 2001). As noted, during the discussion on internal and external validity, various biases could have an influence on the current study. These have been accounted for and as far as possible, various techniques will be employed to decrease or minimise the effect of bias on the data obtained.

## **1.8 ETHICAL CONSIDERATIONS**

Ethical clearance from UNISA to conduct research needs to be obtained prior to research being conducted. A letter of intent (see Appendix B) was sent to the Department of Education, as well as an information leaflet and consent form to the parents of the sample primary school. After permission is obtained from the Department of Basic Education, the researcher will approach the principle of the selected school to discuss the purpose of the study and the method of data collection. Thereafter, consent must be obtained from the Principal of the sample primary school to have learners complete the questionnaires. Parental consent will also be obtained. Informed consent will be obtained from the parents' or guardians' of the respondents who volunteered.

The ethical principles for protecting study participants during the conduct of the research study were beneficence, no harm or risk for participant, and privacy. This will be discussed in Chapter 3.

### **1.8.1 Beneficence**

The method of data collection ensured the anonymity of the sample school and the learners. No names were written on the questionnaires. All data collected was used for research/study purposes only and no information was disclosed to a third party. The researcher also intends to uphold the Code of Ethics for educators as determined by the South African Council of Educators. The researcher has an ethical obligation to protect subjects against any form of physical and/or emotional harm (Leedy, 2001; McMillan & Schumacher, 2014). If a learner experiences any trauma during the completion of the questionnaire, the participant would be referred to the School Psychologist.

### **1.8.2 No harm or risk to participants**

McMillan and Schumacher (2014:131) state that research should never result in physical or mental discomfort, harm, or injury to the participants. This includes the revealing of information that may result in embarrassment or danger to home life, school performance, friendships, as well as direct negative consequences.

### **1.8.3 Privacy**

The privacy of participants must be protected at all cost. The information divulged by the participants, their responses, and personal information will be restricted to the researcher. The researcher ensured privacy by using three practises: (1) anonymity, (2) confidentiality, and (3) appropriate storing of data (McMillan & Schumacher, 2014:133).

Anonymity means that the researcher cannot identify the participants from information that has been gathered. The respondents that will complete the questionnaires will not write their names or the name of the school on the questionnaires. Confidentiality means that no one has access to individual data or the names of the participants except the researcher and the participants. The data collected for this study will be stored in a file and locked in a vault for a period of time. Thereafter the data will be destroyed.

## **1.9 CHAPTERS DIVISION**

The study is divided into five chapters.

### **CHAPTER ONE: ORIENTATION**

This chapter consists of the overview of the study. It entails an introduction, personal involvement, rationale for the study, background, brief review of literature that guides the study, statement of the problem, aim and objectives, research methodology, division of chapters, and summary.

## **CHAPTER TWO: HOME ENVIRONMENT FACTORS WHICH IMPACT ON ACADEMIC PERFORMANCE**

This chapter provides an outline of contextual, theoretical, and conceptual frameworks of the study reviewing collection of interested theories which will guide the research. It sets forth the literature regarding the impact of selected home environment factors on learner performance in international countries, national, and local in Pretoria.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

This chapter offers a detailed account of the research design which deals with research paradigm, approach, and research type. The research methods will include procedures, tools, and techniques to gather and analyse data. Trustworthiness and ethical considerations regarding the participation of human beings in the study is discussed. The ethical principles for protecting study participants during the conduct of the research study were beneficence and no harm or risk for participant and privacy.

## **CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION**

This chapter presents the analysis and interpretation of the empirical research data. This comprises detailed discussions on the findings of the data collected. It includes comparisons of findings with literature.

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATION**

This final chapter gives a summary of the study, draws conclusions on the basis of the analysed and interpreted data, provides recommendations, and identifies areas for future research.

### **1.10 CLOSING REMARKS**

This introductory chapter has set the foundation of the study. The background to the research, problem statement, aims of the research, paradigm perspectives, research design and method, and chapter division has all been discussed. The contextual,

theoretical, and conceptual frameworks will be discussed in chapter two. The theoretical framework will provide an overview of the theoretical underpinnings of the study of Maslow's hierarchy of needs and Vygotsky's Social Constructivism Theory. The review of literature show how existing research supports evidence of the impact of socio-economic factors of learners on schools. Local and international articles, books, and research reports were used in this literature review.



## **CHAPTER 2: LITERATURE REVIEW, THEORETICAL AND CONCEPTUAL FRAMEWORKS**

### **2.1 INTRODUCTION**

The previous chapter was an introduction to the study and it presented the problem statement, the research questions, the aim and objectives of the study, and the rationale for the study.

In this chapter, an overview of the literature concerning the impact of selected home environment factors on primary school learner performance will be provided. The chapter includes a review of the literature, to show the impact of selected home environment factors on primary school learner performance.

The literature review makes reference to poverty, family structure, environment, nutrition and sleep deprivation. Local and international articles, books, and research reports were used in this literature review.

After the literature review, attention is given to the theoretical framework which is underpinned in the theories of Maslow's hierarchy of needs and Vygotsky's theory of socio-culture, followed by the conceptual framework.

### **2.2 REVIEW OF LITERATURE**

In this section, studies conducted in literature regarding the influence of poverty, family structure, environment, nutrition and sleep on academic performance, will be discussed.

#### **2.2.1 Poverty and academic performance**

The link between poverty and low academic performance has been well established internationally and nationally.

The irony is that poverty limits a child's chances of academic performance and at the same time achieving academically is one of the primary mechanisms to escape poverty (Engle & Black, 2008).

Poverty is a worldwide phenomenon and with the impact of the financial crisis in the world's major economies and the subsequent world recession, South Africa, unfortunately also felt the decline in investor and consumer confidence, as well as through strongly declining prices of South African export commodities and the effects thereof (UNICEF South Africa, 2010).

Despite being a middle-income country with relatively well-developed policies and institutions, South Africa is weighed down with high levels of child poverty and a persistently high level of inequality across regions, races, and people of different socio-economic backgrounds. While considerable progress has been made over the last two decades, one can still see that more than half of South Africa's children are living in poverty. Indeed, the poverty figure is higher amongst those under the age of 18 than amongst any other age group (UNICEF South Africa, 2016:24).

Engle and Black (2008) note that many poverty researchers used a broader definition suggesting that "poor" means lacking, not only material assets and health but also capabilities, such as social belonging, cultural identity, respect and dignity, and information and education. Sen (1995) defines poverty as capability deprivation. However, some researchers and policy makers see poverty and poverty escape as key due to an individual condition, whereas others focus on the social exclusion factors which prevent groups or categories of people from moving out of poverty (Tilly, 2007). In a 2014 Statistics South Africa report, it was reported that in 2011, 45.5% of the South African population was living in poverty and 32.5% of the population or roughly 16.3 million people were living below the poverty line (StatsSA, 2014).

The South African Government has, in an effort to alleviate poverty and inequality, introduced a social grant system to help the poorest of the poor. Social grants are awarded for child care, foster child, old age and disability. Currently the amount awarded for child care is R350.00 per month per child and a maximum of R1500.00 for old age (South African Government, 2016).

In studies done in the United States by the National Institute of Child Health and Human Development Early Child Care Research Network in Engle and Black (2008:2), it was concluded that children in chronically impoverished families have lower cognitive and academic performance and more behavioural problems than children who are not exposed to poverty, partially explained by a lack of stimulating behaviours and home experiences among low income families (Engle & Black, 2008).

It was also noted that children raised in poverty had less academic success in school and that strong positive relationships existed between socio-economic status and learner performance across countries, across age levels, and across academic areas of study (EFA Global Monitoring Report, 2007).

Engle and Black (2008:5) continue to state that the United States have evaluated several interventions to examine the effects of reducing poverty on learners' academic success. One such intervention strategy was the Income Supplementation and Residential Relocation Program. This entailed that people were relocated from high-poverty to low-poverty neighbourhoods. This program found that there were no improvement on academic performance, mainly due to the persistence of family poverty in spite of changes in neighbourhoods.

As with the United States, data from developing countries indicated that many families experienced sporadic poverty, with a smaller percent in persistent poverty (Krishna, 2007). A intervention strategy for poverty reduction was designed, that has had a significant impact on educational outcomes in the form of conditional cash transfer programs that give small amounts of funds to household women every month when they are able to meet certain conditions, such as sending their children to school and ensuring that their children received minimal nutrition and immunisations. Through this initiative, evaluations in Mexico, Honduras, and Nicaragua, have shown significant improvements in children's nutrition, school readiness, and school attendance, particularly for girls (Hoddinott & Skoufias, 2004; Behrman & Hoddinott, 2005; Gertler & Fernald, 2004).

Learners' not performing academically is not a uniquely South African problem as many countries are also struggling with the problem with chronically underperforming

schools (Stephens, 2010). Schriener, Mullis and Schriener (2010) report on the devastating impact that family structures and socio-economic situations have on learners' academic performance and cognitive functioning. In a study conducted by Michubu (2013) in Kenya, it is concluded that socio-economic factors had an influence on learners' academic performance. This notion confirms the findings of Farooq, Chandhry, Shafiq and Berhanu (2011) while studying factors affecting students' quality of academic performance in Pakistan. It also states that family characteristics like socio-economic status are significant predictors for learners' academic success at school, besides other school factors, peer factors, and students' factors.

In an address by Taylor (2012), the relationship between education and socio-economic status was described as somewhat circular: It was stated that children born into poor families face an educational disadvantage from before birth and throughout their education and that socio-economic status to a large extent determine educational outcomes, which in turn determine the socio-economic status of the next generation. It is further stated by Taylor that schools, "therefore are a mediating layer which influences the intergenerational transmission of socio-economic status". Despite the South African Government's high levels of spending on education, poor children in South Africa are performing at lower levels of literacy and numeracy than equally poor children elsewhere in Southern and East Africa. Data on the performance of South African children in Grades 3, 4, and 5 show that those children attending historically disadvantaged schools are lagging behind their peers by at least two years' worth of learning in the historically advantaged schools (Taylor, 2012).

In addition to all of this, studies on the quality of schooling in South Africa concur that poverty remains by far the most powerful determinant of school improvement and educational opportunity in the country. Social context matters: negative social forces such as poverty, unemployment, crime, and violence that are prevalent in many communities consistently affect the schooling process and impact learners' educational experiences and outcomes. These forces emerge as an outcome of both South Africa's historical legacy of apartheid and the socio-economic arrangements of the current political dispensation — where "the adoption of neo-liberal economic policies has contributed to growing inequality and poverty in the country" (Taylor, 2012).

Inadequate education and increased dropout rates affect children's academic performance, continuing the low socio-economic status (SES) of the community. Improving school systems and early intervention programs may help to reduce these risk factors (Aikens & Barbarin, 2008).

Aikens and Barbarin (2008) continue to state that further research on the correlation between SES and education is essential and that studies conducted by the APA indicates that school conditions contribute more to SES differences in learning rates than family characteristics. Schools in low-SES communities suffer from high levels of unemployment, migration of the best qualified teachers, and low educational performance (Chapman, Harris, Muijs, Russ, & Stoll, 2004). Gimbert, Boland and Wallace (2007) confirm this notion and state that a teacher's years of experience and quality of training has a direct correlation with children's academic performance. Yet, children in low-income schools are less likely to have well-qualified teachers.

### **2.2.2 Family structure and academic performance**

Literature and theories that have a particular relevance to South Africa are limited, as the majority of the studies found refer to Western societies. Studies have been conducted by researchers on the impact of various factors on learners' academic performance and the influence of parental structure and parenting styles on academic performance.

In a study conducted by Mdanda (1997:107) it was concluded that parental family structure has an influence on a learner's academic performance and that learners' from both parent families achieved greater academic success than learner's from single-parent families (Mdanda, 1997). Mdanda (1997:107-108) further concludes that single-parental structures found it burdensome to pay for children's school fees due to limited financial resources and that this, in turn, preventing them from being fully involved in their children's schoolwork and assisting them with doing homework afterschool. He continues to state that the occupational status of parents is one of the determining factors for learners to achieve academic success as children from unskilled labourers or lower socio-economic occupations had lower marks and lower academic success (Mdanda, 1997). This supports the findings of Banks (1982:65);

Brockhaus (1982:70) and De Lint (1987:17), that the occupations of learners who perform academically are more professional, administrative, and clerical. Studies done as early as 1972 noted the association between learners' academic performance and parental occupational status (Marjoribanks, 1972). These findings are supported by Gabela (1983:81), Jubber (1990:8), Prinsloo and Vorster and Sibaya, (1996:263).

However, the impact of family structure on academic performance could not be established in a study conducted by Mbatsane (2014:42). This is contradictory to international trends which show that children from both parent families perform academically better than learners from single parent families. Mbatsane (2014) further states that in accordance to some researchers, differences in the academic performance of children from single-parent and two-parent families can be related to changes in the economic circumstances of families (Demo & Acock, 1996; McLanahan & Sandefur, 1994) and therefore family resources and learning opportunities outside of the school period (Entwisle & Alexander, 1995). They can also be related to variations in the quality of parent-child interactions in the different family structures. Yet, on average, children in single-parent families are more likely to have problems, than those who live in intact families headed by two biological parents.

Videon (2002) states that the fundamental unit of all societies is the family and that the family is usually the major source of the basic necessities of life and health, love and tenderness, adequate food, clean water, a place and time for rest, clothing and sanitation, which is made possible by the prevailing socio-economic, environmental and sometimes political conditions. The family structure varies in form and it is therefore responsible for the care and upbringing of all its members (Videon, 2002).

Research conducted by Sussmann and Steinmetz (1988), Zinn and Eitzen (1987) and Macklin and Ruben (1983), in Steyn (1993/1994) conclude that although the nuclear family (father, mother and siblings) may be the ideal family, a variety of other family structures have also developed like step-parent families, children staying with grandparents, relatives, child-headed families and families consisting of same sex parents (Steyn, 1993/1994).

The family is affected by social contexts. Connections to the neighbourhood and the larger community influence parent-child relationships. When lack of neighbourhood organisation combines with little or no parent involvement, youth rebellious activity is especially high (Elliott, Wilson, Huizinga, Sampson, Elliott & Rankin, 1996:389-426). In contrast, when family ties to the surrounding social context are strong, as indicated by regular attendance and regular contact with friends and relatives, family stress and adjustment problems are reduced.

In a study conducted by Iacovou (2001), it is revealed that children from larger families are found to be less academically successful than children from smaller families. It was also concluded that children lower down the birth order have a lower academic success rate than siblings higher up the birth order. This notion is strengthened by Murphy (2012) which states that first born children tend to be more academic than their other siblings and are highly motivated as more parental attention is received and parents tend to be more involved and invest more time with them (Kluger, 2011). Iacovou (2001) further reports that as the number of children increase, parental attention decline and children born later perform poorly compared to earlier born siblings.

Studies conducted by Cobb-Clark and Moschion (2013), Odok (2013), Eamon (2005), and Eristwhistle (1986), indicate that small family sizes are linked to higher educational success. Family size, in the context of this study, refers to the total number of children in a child's family in addition to the child himself.

Odok and Ella (2015) are of the notion that large families, whether rich or poor are difficult to maintain, they are characterized with a high number of children, rowdiness and this does not create a conducive environment for learning. Other problems that are identified in the upbringing of children in large families include feeding, poor clothing, insufficient funds, and lack of proper attention for children, disciplinary problems, and malnutrition which impact negatively on children's academic performance (Odok & Ella, 2015).

Eristwhistle (1986) states that studies carried out in Scotland found that children with relatively small size families performed better in verbal and non-verbal tests, than

children from large family size in the same test. This, according to the author, is because children from large families have less frequent interactions with adults. Similarly, parental attention decline as the number of sibling's increases and latter born children perform less well than their earlier born siblings.

This notion is strengthened by a study conducted by Adekanmi (undated) where it is concluded that family size has a domineering effect on the academic performance of children. There is also a significant difference in the academic performance of male children from small families and male children from large families. The study concludes that family size has a domineering effect on the academic performance, since the available resources from a small family are to be shared within small number of people. Bysenk and Locksoh (2011) affirm that most extroverted children come from smaller homes and that they adjust more easily to school environment, express themselves easily in the classroom and, therefore, they can achieve a greater academic performance as opposed to introverted children of larger family size. Booth and Kee (2006) confirm that children from larger families have lower levels of education and also perform poorly in academics. However, Powell and Stellman (2010) and Van-Ejick and Degraaf (2012) argue that children's academic attainment depends on inputs of time and money from their parents, the more children there are in family the less of both inputs. These inputs are not money alone, but also include essential attributes like attention and resource strength.

The family type that a child comes from either monogamous (nuclear), polygamous, divorced parents, re-married parents, single parents, or step-parents, usually has an impact on a child's academic performance. The nuclear family consists of two parents and children. It is held in esteem by society as being the ideal in which to raise children. Children in nuclear families receive strength and stability from the two parents' structure and generally have more opportunities due to financial ease of two parents. The result of this hypothesis is in agreement with the result of the study conducted by Collins (2006) which concluded that a child's birth order is the first predictor of how a child will behave, think, and feel. The position a child is born into has the potential to shape their personality, self-esteem, intelligence, and eventually their career choices. The size of the family and the position of the child in the family affect performance of pupils positively or negatively.



Overcrowding of families, the position in the families, environments, all these have influence on the learners' academic performance and any educational programme depends on the learners' good academic performance for its success.

### **2.2.3 Environment and academic performance**

Adebanjo (2014) states that the home is the primary environment for a child, this means that the family background of the child, which includes all things present in the house, affects the child's living. This includes the parent's level of education, occupation, social-economic status, and the socializing facilities available in the house. The home is primary responsible for providing the child's primary socialization and laying the educational foundation for the child upon which the other agents of socialization is built (Adebanjo, 2014).

A deprived environment, according to Msutwana (2004:1), and cited in Burns-Ncamashe (2005), is one that is generally impoverished and devoid of opportunity. Mdluli (2015) defines poverty as the lack of goods and services, lacking basic things such as clothing and being unable to send children to school. Mdluli (2015) further identifies four causes of poverty, namely environmental circumstances like divorce or poor health, generational poverty where poverty is moving from two or more generations in a household, urban poverty which is characterised by congestion, noise pollution and violence and rural poverty embodied in scarcity of employment and single parent families, mostly headed by females (Mdluli, 2015:127). This strengthens the definition of an impoverished environment by Msutwana (2004) who claims that an impoverished environment is caused by various factors, such as poverty, cultural and geographical isolation, broken or incomplete family structures, physical deficiencies (e.g. hunger), urbanisation, and inhibited socialisation.

Van Greunen (1993:106-107), cited in Msutwana (2004:2), argues that "deprived children from low socio-economic environments display, among other problems, poor self-concept, language deficiencies, an obscured or darkened future perspective, confusion about moral and cultural norms, and rejection of authority (he or she is often alienated from his or her parents). Taking the description of a deprived child further, Msutwana (ibid) cites Pretorius (1998:308-310), who claims that "the deprived child's

impoverished environment and problematic school situation further lead to an ineffective learning style, deficiencies with regard to home background experiences, as well as shortcomings in the social-emotional, cognitive, physical and educational spheres of development” (Msutwana, 2004).

Msutwana (2004:113) continues to claim that the learners’ psychological well-being and learning are influenced by poverty. She added that many learners’ come from deprived homes and become caught up in a vicious circle of poverty and non-success in life and that a learner’s environment determines and influences the ability and motivation to actualise their full potential. Environmental factors have an influence on the motivational state of learners in deprived areas, as learners’ homes and neighbourhoods contribute to their motivation, drive, and self-esteem. Absent parents, single-parent families, poor parental relationships, lack of parental support, and the poor financial state of parents are also contributing factors to learner delinquency.

The American Psychological Association (APA) states that SES is often measured as a combination of education, income, and occupation. SES is relevant to all areas of behavioural and social science, including research, practice, education, and advocacy. Low socio-economic status and its correlates, such as lower education, poverty, and poor health, ultimately affect our society as a whole. Inequality in wealth and resource distribution, and quality of life are increasing globally.

Society benefits from an increased focus on the foundations of socio-economic inequities and efforts to reduce the deep gaps in socio-economic status.

Research indicates that children from low SES households and communities develop academic skills more slowly compared to children from higher SES groups (Morgan, Farkas, Hillemeier & Maczuga, 2009). Households in low SES communities are not conducive for initial academic success due to low literacy environments and chronic stress which negatively affect a child’s pre-academic skills. The school systems in these low SES communities are often under-resourced which further affects students’ academic progress negatively (Aikens & Barbarin, 2008).

Families from low SES communities are less likely to have the financial resources or time availability to provide children with academic support. Orr (2003) concludes that parents from low SES communities may be unable to afford educational resources such as books, computers, or tutors to create this positive literacy environment. Research has also shown that a child's initial reading competence is correlated with the home literacy environment, number of books owned, and parent distress (Aikens & Barbarin, 2008).

Studies further concluded that a school's focus on improving teaching and learning, creating of an information rich learning environment, continuous professional development of educators, getting parents involved and building a learning community, as well as increased funding and resources all contributed to improve the quality of schools in low SES neighbourhoods (Muijs, et al., 2004).

Research continues to link lower SES to lower academic performance and slower rates of academic progress, as children from low-SES environments acquire language skills more slowly, exhibit delayed letter recognition and phonological awareness, and are at risk for reading difficulties as compared with children from higher SES communities (Aikens & Barbarin, 2008). Children in higher SES backgrounds were more likely to be proficient on tasks of addition, subtraction, ordinal sequencing, and math word problems than children with lower SES backgrounds (Coley, 2002).

Increasing evidence supports the link between lower SES and learning disabilities or other negative psychological outcomes that affect academic performance. Children from lower SES households are about twice as likely as those from high SES households to display learning-related behaviour problems. A mother's SES also correlated with her child's inattention, disinterest, and lack of co-operation in school (Morgan, et al., 2009). Awareness of family economic stress and personal financial constraints influenced the emotional distress/depression in learners and their academic outcomes (Mistry, Benner, Tan & Kim, 2009).

In spite of the evident improvement in material conditions of life over time, Everatt, (undated) as quoted in Burns-Ncamashe (2005) argues that the lives of black youth in South Africa have been and continued to be dominated by poverty, which is also the

case with the learners in this study. In such circumstances, research has shown that education is a clearly identified path from poverty (Everatt, undated in Burns-Ncamashe, 2005).

Louw, Edwards and Orr (2001:67-68), as cited in Burns-Ncamashe (2005), identify “a system by which barriers to learning and development are categorised according to circles such as individual, environmental circle, family circle, peer group circle, school circle, community circle, and society circle. Lack of basic needs and poverty are categorised as coming from the family circle; a lack of facilities and resources and inadequate teaching are categorised as stemming from the school circle, whereas a lack of resources and funding, a lack of educational support services, drug abuse, and crime, are barriers coming from the community circle. The evident lack of basic needs such as books and other facilities and resources, funding, prevalent crime and drug abuse are potentially limiting factors” (Burns-Ncamashe, 2005).

In South Africa, poverty and the negative forces related to it, such as hunger, illness, crime, and violence, is concentrated in many urban townships and rural communities. South Africa’s poverty rate stood at 57% in 2001 (SA Human Sciences Research Council, 2004), and the unemployment rate was 40% in 2004 (Kingdon & Knight, 2006). These forces conspire to severely limit the opportunity for performance among the children and young people who live in these communities. International research shows that inadequate housing, health care, and nutrition, as well as unemployment and unsafe environments, all have negative effects on the learning and development of children (Leventhal & Brooks-Gunn, 2004; Duncan & Brooks-Gunn, 1997; Dryfoos, 1994).

The same challenges are found in many of South Africa’s rural schools, and contribute to high absenteeism rates, poor academic performance, and violence on and around the school premises, and low morale and motivation amongst educators (Fiske & Ladd, 2005; South African Human Rights Commission (SAHRC) Report, 2006).

Further compounding these already difficult circumstances is the growing devastation caused by the HIV/AIDS pandemic. In addition to the issues of poor health and poor school attendance, the prevalence of the disease has also contributed to higher levels

of psychosocial trauma, the disintegration of family units, and an increase in the number of child-headed households and orphans who attend schools (Abt Associates, 2000; Badcock-Walters, 2001; Smart, 2000).

In summary, Rutter (2006) is of the notion that poverty reduction requires a life-cycle approach that begins during the early years before formal schooling to ensure school readiness, involves the family and community, and focuses on the indirect processes linking poverty to child development and educational performance. He continues to state that there are no magic bullets that can be applied across all settings and that both individual characteristics and contextual factors determine how children can benefit from educational opportunities and over the course of time, escape from poverty (Rutter, 2006).

#### **2.2.4 Nutrition and academic performance**

Chinyoka (2014) claims in a study that malnutrition remains one of the leading obstacles to human well-being and impacted all areas of a child's growth and development, this includes academic performance in the classroom. The study goes on to reveal that malnutrition affects physical growth and cognitive development, and it consequently impacts on academic performance, health, and survival of learners. It is also found that hungry and undernourished learners have higher rates of absenteeism and are less able to concentrate and learn in class, and have to take physical work and sport activities serious (Chinyoka, 2014).

In studies conducted in the United Kingdom of Great Britain and Northern Ireland, nutrition during infancy was associated with intelligence in mid-childhood and adolescence. This was strengthened by studies conducted in New Zealand where a positive association between cognitive skills and diets at the ages of three and a half years could be established and in Australia where children with healthy diets during early childhood had higher verbal and non-verbal abilities in mid-childhood (Feinstein, et al., 2008). A positive association between good diet and academic performance was also found in adolescents from Canada, Chile, Iceland, the Netherlands, Norway and Sweden (Feinstein, 2008, in Correa-Burrow, 2016).

Results of studies that have tested the association of academic outcomes with consumption of specific foods are consistent with those using an overall measure of diet. Canadian junior high school learners' consuming milk, vegetable, and fruit on a regular basis had better school-grades, (MacLellan, Taylor & Wood, 2008, in Correa-Burrows, 2016).

Daily intake of fruits among Norwegian adolescents was associated with better academic outcomes, independent of nutritional status and parental education. Swedish students eating fish high in omega-3 fatty acids were more likely to have good school grades. Finally, in American adolescents, school-grades were contrariwise linked with daily intake of sugar sweetened drinks. It should also be noted that Hyde, Lindberg, Linn, Ellis and Williams (2008) conclude in their study that girls tend to obtain better results in reading and writing skills, while boys tend to perform better in mathematics.

These results support recommendations that individuals should consume a diet that meets the requirements of micro and macronutrients needed to support healthy growth and development. Several dietary components impact on molecular systems or cellular processes that are vital for maintaining cognitive function. In doing so, diet can affect multiple brain processes by regulating neurotransmitter pathways, synaptic transmission, membrane fluidity and signal-transduction pathways.

Omega-3 fatty acids, a key component of neuronal membranes, elevate brain derived neurotrophic factors, stimulating synaptic plasticity and the efficacy of synaptic transmission. Flavonoid and non-flavonoid polyphenols, which can be found in fruits and vegetables, modulate learning and memory by promoting neuronal signalling and increasing production of antioxidant and anti-inflammatory agents (Correa-Burrows, 2016). On the contrary, excessive exposure to saturated fats and simple sugars decreases levels of hippocampal brain-derived neurotrophic factors and increases oxidative stress (Correa-Burrows, 2016).

Correa-Burrows (2016) further states that evidence proves that promoting healthy diets in young children may help prevent cognitive impairment, strengthens public health messages about diet that is based upon physical health alone. Academic

performance is closely linked to expectations of parents, school boards and educational agencies, and relates to better prospects of jobs, income and socio-economic status.

The current economic situation worldwide, and also in South Africa, is a major concern and has an influential impact on all people. Poverty alleviation remains a major commitment of the South African Government (2010), and therefore Government has undertaken feeding programmes at schools. The Minister of Basic Education, Ms. Motshekga, has also mentioned the valuable impact of the school nutrition policy in her address on 25 February 2010. As an effect thereof, the Department of Basic Education's National School Nutrition Program (NSNP) contributed to the National Development Plan's (NDP) priority of eliminating poverty and supporting food security by providing meals to schools each year.

During the 2015/16 financial year, more than nine million learners in 21 191 public schools benefited from the NSNP; which represents 75, 9% of learners in 88, 1% public schools. According to the results of the General Household Survey released by Statistics South Africa (Stats SA) in June 2016, nationally 33, 2% of individuals aged five years and older attended an educational institution in 2015.

The prerequisites set out by the Department of Basic Education for school menus are that it should offer tasty and adequate meals which must fulfil at least 30% of the daily nutritional needs of learners per meal. A balanced meal which is composed of protein (such as vegetable protein e.g. soya products, dried beans, lentils, nuts and dried peas or animal protein, e.g. meat, milk, eggs and fish (depending on affordability), starch (such as maize meal, samp, mealie rice, rice, bread, potatoes), vegetables (at least one green and one red or yellow or orange vegetable per meal), fats and oils and iodated or iodized salt and seasoning are used in moderation. It was also further set out that peanut butter may only be used if quality assurance standards by the Department of Health have been met and that maize meal, bread or flour and flour products must have the logo depicting that they have been fortified with essential macro nutrients and that learners should drink at least eight glasses of water daily (Department of Basic Education, 2017).

In an effort to educate and alleviate hunger, the Department of Basic Education has included nutrition and the correct food choices in the Curriculum and Assessment Policy Statement (CAPS) for Life Skills for both the Foundation and Intermediate phases. In the Intermediate phase learners are exposed to the South African Food Guidelines, which includes the food groups and examples of the food that falls under these groups. In Life Orientation in Grade 7 learners are further exposed to these food guidelines and the nutritional value attached to each food group and what the body needs to function optimally (Department of Basic Education, 2011).

Research done on the importance of nutrition, suggests that while nutritional factors play a vital part in determining verbal scores, an equally important part is played in the determination of non-verbal score by medical care and environmental stimulation (Evans, 1973). Studies conducted in the U.S. in 2013, by the Centres for Disease Control, concludes that nutrition affects learners' thinking skills, behaviour and health, all factors that impact academic performance (Wilder Research, 2014).

Research conducted by Wilder Research (2014) further suggests that diets high in trans- and saturated fats can negatively impact the brain, influencing learning and memory (Gómez-Pinilla, 2008), insufficient nutrition early in life can affect the cognitive development of school-aged children, and access to nutrition improves learners' cognitive, concentration, and energy levels. This supports the notion of Florence, Asbridge and Veugelers (2008) which conclude that learners' with less nutritious diets performed worse on standardised literacy assessment. In another study conducted by Li and O'Connell (2012) it is discovered that learners' who consumed more fast food fared worse on math and reading scores.

Nutrition, also directly impacts school performance as poor nutrition can leave learners' susceptible to illness or lead to headaches and stomach aches, resulting in school absenteeism (Brown, Beardslee & Prothrow-Stith, 2008). This notion is strengthened by Naik, Itagi and Patil (2015), which states that problems associated due to poor nutrition results in low school enrolment, high absenteeism and unsatisfactory classroom performance. This, in turn, also supported the study by Srivastava, Mahmood, Srivastava, Shrotriya and Kumar (2012) which concluded that



poor growth is associated with impaired development which is apparent in the relationship between growth status, school performance, and intellectual performance. Ivanovic, Leiva, Pérez, Almagià, Toro and Urrutia (2002:87-92) define the effects of malnutrition (as it) alters brain development and intelligence by interfering with overall health as well as with the child's energy level, rate of motor development and growth; poverty and deprivation intensify these negative effects, especially when mothers have lower schooling levels.

In studies conducted by various researchers and organisations, it was found that under-nutrition remains the most important nutritional problem in developing countries and at an early age it affects the growth and development of children, especially in conditions of poverty. It was also found that under-nutrition has been associated with retarded brain growth and functional development that persists into adult life (Brown & Pollitt, 1996; Cordero, et al., 1993; Food and Agriculture Organization, 1996; Grantham-McGregor, 1995; Hack & Breslau, 1986; Hack, et al., 1991; Ivanovic, 1996; Ivanovic, et al., 2000b; Ivanovic, et al., 2004; Leiva, et al., 2001; Levitsky & Strupp, 1995; Moodie, Bradshaw, Stoch & Smythe, 1982; Stoch & Smythe, 1963, 1967, 1976; Udani, 1992; Winick & Rosso, 1969; Winick, 1975).

This strengthens the view point of Ivanovic, et al. (2002:81-92) that it is evident that complex interactions are established during the lifetime of the individuals. Therefore, malnutrition at an early age damages the brain or induces biochemical changes and the social and economic correlates of malnutrition are not the only explanation of the long-term effects of malnutrition on intelligence (Brown & Pollitt, 1996; Pollitt, et al., 2000 in Ivanovic, et al., 2004).

It is possible that other environmental and genetic factors, which were not quantitated, could affect birth weight, head circumference (HC), Brain Volume (BV), maternal Intellectual Quotient (IQ), child IQ and Scholastic performance (SA); genetic factors have been described affecting head circumference, brain volume and intellectual quotient. (Bouchard, 1998; Casto, et al., 1995; McGue & Bouchard, 1998; Strauss & Dietz, 1998 in Ivanovic, et al., 2002; Weaver & Christian, 1980).

These findings are relevant in explaining the complex interactions between variables that affect IQ and scholastic performance and emphasize the significant role of maternal IQ, brain volume, and malnutrition at an early age. Improved nutritional status has a positive and direct impact on learners' academic performance. When a child's basic nutritional and fitness needs are met, they have more cognitive energy to learn and to achieve (Naik, et al., 2015). Research has shown that healthy, well-nourished children are more prepared to learn, more likely to attend school and class, and able to take advantage of academic opportunities.

Naik, et al. (2015) further state that a highly positive and significant relationship and positive association was observed between nutritional status and academic performance of learners and this supported the notion of Acham (2010) that although a number of factors play a significant role in determining a learner's educational outcomes, a child's health and nutritional status are some of the potential factors that can influence educational performance.

This strengthened the notion by a study conducted by Belot & James (2009) that analysed a healthy eating campaign that barred junk food from schools and introduced healthier, freshly prepared school meals. They found that learners' participating scored higher in English and Sciences test than those learners' who did not participate in the campaign. Access to nutrition that incorporates protein, carbohydrates, and glucose has been shown to improve learners' cognitive concentration and energy levels (Bellisle, 2004; Sorhaindo & Feinstein, 2006).

#### **2.2.5 Sleep deprivation**

Sleep is the body's natural method of restoring the body's homeostasis. During sleep, cells are made and repaired, growth hormone is released and the body's glucose metabolism and immune system functions are rested. Evidence further supports the notion that during sleep, information learned during the day is consolidated and stored into the long-term memory (Blunden & Chervin, 2009).

The link between sleep and academic performance may be related through several pathways and mechanisms. A direct effect of sleep has been shown in experimental

studies in which sleep restriction has resulted in impaired learning and memory performance in early adolescence (Curcio, Ferrara & De Gennaro, 2006). Sleep may also impact upon academic performance indirectly through tardiness or school absenteeism (Boe, Haugland, Hysing, Sivertsen & Stormark 2015). It was also found that, there may be perplexing factors, such as socio-economic status known to be related to both sleep (Boe, Hysing, Stormark, Lundervold & Siverten, 2012) and school performance (Sirin, 2005).

Although studies were conducted on sleep and optimal sleep patterns amongst children and adolescents and the effects thereof on children's ability to function optimally at school in many America, India, South Korea and Australia, Reid, Maldonado, and Baker (2002) state that not many studies were conducted on South African adolescents. In their study they conclude that adolescents should get on average 9.2 hours sleep per night, and on average, South African adolescents only sleep 8.25 hours. South African male and female youths do not get the recommended adequate amount of sleep and are sleepy in the morning at school. Richter (2015) notes that the average adolescent in South Korea only sleep 4,9 hours per night, but that the teenage suicide rate in South Korea is also high (10,7 out of a 100,000) and that researchers are of the opinion that their lack of sleep is contributing to this.

Sprenger (2005) concludes in a study that learners need about nine hours of sleep per night, but unfortunately many learners' biological clocks are reset by the school academic workload so it is difficult for them to fall asleep before midnight.

Dahl (1996) concludes that there are individual differences in response to inadequate sleep, the general pattern of results from studies included: difficulties with focussed attention, irritability, emotional instability, and low-threshold for frustration and distress. The similarity of these "sleepiness" symptoms to attention deficit disorder symptoms has received comment by numerous investigators and clinicians.

Navalet, Anders and Guilleminault (1976) were some of the first to make the association between child sleepiness and attention deficit. Carskadon, Harvey and Duke (1987), severely restrict sleep to four hours on a single night in nine children aged 11 to 13 years, there were no significant effects seen on abbreviated versions of

a Wilkinson Addition Test and a Williams Word Memory Test or a listening attention task. In a second study, however, with slightly older children (12 subjects, ages 11.7 to 14.6 years) one night of total sleep deprivation was examined, it showed a marked tendency for impairment in all performance measures during the sleep deprivation. Blunden and Chervin (2009) state that sleep has an adverse effect on mood and poor sleep can result in increased rates of depression and anxiety, which can affect children's health and academic performance. Sleep deprived learners also demonstrate lower levels of creativity, hand-eye coordination, and spatial awareness. In a smaller, focused study of South Australian adolescents, Short, Gradisar, Wright, Lack, Dohnt and Carskadon (2011) find that adolescents who reported a parental-set bedtime *per se* versus those without a set bedtime reported earlier bedtimes, more sleep, and less daytime fatigue experienced. This study provides evidence that parental intervention by setting a bedtime results in extended sleep; and the combination of earlier bedtime and extended sleep contribute to more positive outcomes for depression, sleepiness, and fatigue.

A review by Cain and Gradisar (2010) note that the prevalence of studies reported shorter, later, and/or more disrupted sleep, as well as such daytime consequences as sleepiness or disruptive behaviour, for children and adolescents as TV watching, computer/Internet/electronic games use, or mobile phone used in the evening before bedtime is greater. These activities are arousing in and of themselves and usually more easily accessed by the older adolescents, taking advantage of increased accessibility of technology and of the changes to the sleep regulatory systems that make it easier to stay awake later. Indeed, to the extent that the activities involve light exposure — in particularly blue-spectrum light exposure to which the circadian clock may have greater sensitivity (Brainard, Hanifin & Greeson, 2001; Thapan, Arendt & Skene, 2001:261-267) — evening light has the phase-specific effect of delaying circadian rhythms, thus pushing sleep timing later (Khalsa, Jewett, Cajochen & Czeisler, 2003:945-952).

The National Institute of General Medical Sciences defines circadian rhythms as physical, mental, and behavioural changes that follow a roughly 24-hour cycle, responding primarily to light and darkness in an organism's environment

Adolescents in the 21<sup>st</sup> century spent less time on sleeping on school nights, below a healthful amount, with waking and expected school performance timed to occur at an inappropriate circadian phase. As reviewed above, bio-regulatory and psychosocial forces collude to push sleep onset later, yet schools are timed to begin earlier across adolescence, and sleep time is compressed as a consequence.

The list of negative outcomes associated with sleep deprivation is lengthy and ranges from sleepiness and mood disturbances, inattention, poor grades, behaviour problems, substance use, driving crashes, overweight, and immune system compromise. For some adolescents, the issue can present as sleep-onset insomnia that may be associated with the circadian phase delay; when combined with lack of motivation, depressed mood, and fatigue, a depressive disorder is often the initial assumption. An approach that targets sleep timing and phase adjustment is likely to be an improvement on the overall wellbeing of adolescents.

In order to find an evaluation tool that helps to interpret the data presented in this study regarding the possible explanations for the selected home environment factors, the theories of Maslow and Vygotsky were used.

## **2.3 THEORETICAL FRAMEWORK**

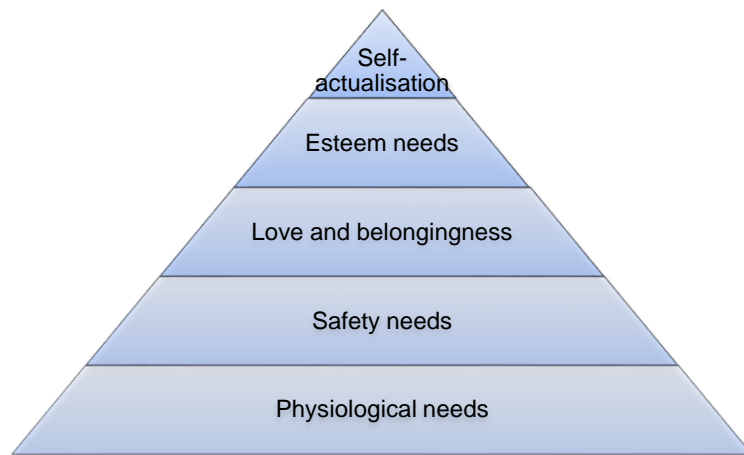
The theoretical framework serves as an “appraisal tool” for research. The theoretical framework is essential in applied quantitative studies, especially when researching a problem that has been extensively studied and can show a logical link between questions and methodology (McMillan & Schumacher, 2014:86). The theories of Maslow and Vygotsky underpin this study. Grounded in the framework of Maslow’s Hierarchy of needs (Maslow, 1943) and Vygotsky’s Constructivist Theory (Vygotsky, 1978), this study sets out to examine the impact of selected home environment factors on primary school learner performance.

### **2.3.1 Maslow hierarchy of needs**

Maslow's hierarchy, developed by Abraham Maslow in 1954, is a way of organizing the basic needs of students on different levels. The pyramid-shaped hierarchy

includes physiological needs, safety, love and belonging, self-esteem, knowledge and understanding, and aesthetic and self-actualization.

For the purpose of this study, the theory of Maslow was used to underpin the concept of academic performance and that in order to achieve academic success, the basic needs of a learner first need to be met, before academic success can be achieved.



**Figure 2.1: Maslow's Hierarchy of needs (Maslow, 1971)**

Maslow's hierarchy of needs sets the foundation for this study as it states that in order for an individual to move to the next level, the lower level of needs must be satisfied first. If, for whatever reason, the need is not met or satisfied, then the need to fulfil such need will become stronger for the duration that they are denied. Unfortunately, due to socio-economic factors or trauma that may cause an individual to fluctuate between the levels of hierarchy, the progression to a next level is often disrupted. This hierarchy ranges the survival and safety level of needs (lower-level needs) to intellectual performance and finally self-actualisation which are the higher-level of needs. Self-actualisation is the realisation of personal potential. Maslow (1968) continue to label the four lower-level needs – survival, then safety, followed by belonging and then self-esteem, and deficiency needs.

In a study conducted by Lutz (2014) on Maslow's hierarchy of needs, the notion that all learners have basic needs to be met for learning to occur is strengthened. The more

learners' needs are met; the more learning will take place. The more levels that are met, the more a learner will learn.

Maslow was of the belief that humans have the need to increase their intelligence and thereby pursue knowledge. Gautam (2007) states, this growth need for self-actualization and learning is not met or not fulfilled it leads to confusion and identity crisis.

Self-actualization is a very important part of the hierarchy and that is the highest level of Maslow's hierarchy of needs. Bamuhigire (2009) is of the notion that human beings need a framework of values, a philosophy of life, a religion or religion-surrogate to live by and understand in about the same sense as the need for sunlight, calcium, or love. Human beings need a validated, usable system of human values that can be believed in and be faithful to (Bamuhigire, 2009). Self-actualization can take many forms, depending on the individual. These variations may include the quest for knowledge, understanding, peace, self-fulfilment, meaning in life, or beauty. For instance, the aesthetic person functioning on this level may feel physically ill when driving past an ugly array of fast-food restaurants with bright neon signs. But the need for beauty is neither higher nor lower than the other needs at the top of the pyramid. Self-actualization needs are not hierarchically ordered (Lutz, 2014).

Lutz (2014) concludes that self-actualizing people have many such peak experiences and eventually feel inspired to actively seek them, extend them, and stabilize them. Hence, Maslow added the goal of self-transcendence as the final level, the capstone of the pyramid. The desire is to go beyond our ordinary human level of consciousness and experience oneness with the greater whole, the higher truth, whatever that may be.

For the purpose of this study Maslow refers to the individual and what is needed to progress to the next level, as it cannot stand on its own, Vygotsky's socio- culture theory refers to the notion that an individual is formed by the surrounding community or environment. Both Maslow and Vygotsky are interrelated as they are interdependent on each other.

### **2.3.2 Vygotsky's theory of socio-culture**

The Igbo and Yoruba (Nigeria) proverb 'Oran a azunwa', which means 'It takes a village to raise a child!' is of relevance (African Proverb, undated).

Vygotsky (1896-1934) was one of the Russian psychologists whose ideas have influenced the field of educational psychology and the field of education as a whole. Although biological factors represent the necessary pre-requisite for elementary processes to surface, socio-cultural factors are crucial for elementary natural processes to develop. Vygotsky argues for the uniqueness of the social milieu and regarded socio-cultural settings as the primary and determining factor in the development of higher forms of human mental activity (Turuk, 2008).

In a study conducted by Lantolf (2000) it states that Vygotsky advocated that humans do not act directly on the physical world without the intermediary of tools. Whether symbolic or signs, tools, according to Vygotsky, are "artefacts created by humans under specific cultural (culture specific) and historical conditions, and as such they carry with them the characteristics of the culture in question. These are used as aids in solving problems that cannot be solved in the same way in their absence. In turn, they also exert an influence on the individuals who use them in that they give rise to previously unknown activities and previously unknown ways of understanding phenomena in the world" (Lantolf, 2000:8). Therefore, they are subject to adaptation as they are passed from one generation to the next and each generation reworks them in order to meet the needs and aspirations of its individuals and communities.

According to Vygotsky (1978, cited in Lantolf, 2000), the socio-cultural environment presents the child with a variety of tasks and demands, and engages the child in his world through the tools. In the early stages, Vygotsky claims that the child is completely dependent on other people, usually the parents, who initiate the child's actions by instructing him/her as to what to do, how to do it, as well as what not to do (Lantolf, 2000). Parents who are seen as representatives of the culture and the channel, through which culture is passed into the child, actualise these instructions primarily through language.



Vygotsky (1978, cited in Wertsch, 1985) states that the child acquires knowledge through contacts and interactions with people as the first step (inter-psychological plane), then later assimilates and internalises this knowledge adding personal value to it (intra-psychological plane). This transition from social to personal property, according to Vygotsky, is not a mere copy, but a transformation of what had been learnt through interaction, into personal values (Wertsch, 1985). Vygotsky further claims that this is what also happens in schools. Learners do not merely copy teacher's capabilities; rather they transform what teachers offer them during the processes of appropriation (Wertsch, 1985).

Williams and Burden (1997) claim that socio-cultural theory advocates that education should not just be concerned with theories of instruction, but with learning to learn, making learning experiences meaningful and relevant and to develop skills and strategies to continue to learn and to grow as a whole person. They claim that the theory asserts that education can never be value-free; it must be underpinned by a set of beliefs about the kind of society that is being constructed and the kinds of explicit and implicit messages that will best convey those beliefs. These beliefs should be manifest also in the ways in which teachers interact with students. Socio-cultural theory has a holistic view about the act of learning (Williams & Burden, 1997).

According to Ellis (2000), socio-cultural theory assumes that learning arises not through interaction, but in interaction. Learners first succeed in performing a new task with the help of another person and then internalise this task so that they can perform it on their own. In this way, social interaction is advocated to mediate learning. According to Ellis, the theory goes further to say interactions that successfully mediate learning is those in which the learners scaffold the new tasks. However, one of the most important contributions of the theory is the distinction Vygotsky made between the child's actual and potential levels of development or what he calls Zone of Proximal Development (ZPD) (Ellis, 2000).

Palincsar (1998) states that Vygotsky believed that human activity takes place in cultural settings and cannot be understood apart from these settings. One of the key ideas was that our specific mental structures and processes can be traced to our interactions with others. These social interactions are more than simple influences on

cognitive development actually create our cognitive structures and thinking processes. Cobb and Bowers (1999) affirm Vygotsky's notion that learning is inherently social and embedded in a particular cultural setting (Woolfolk, 2007), hence the basis of this study.

Vygotsky's constructivist theory suggests that learners' learning is affected by their social interactions (Schunk, 2004, in Ford, 2013) and Maslow's hierarchy of needs assists in looking at the learner as a whole, whose physical, emotional, and intellectual needs are all interrelated (Woolfolk, 2007:375). It is therefore necessary to understand the underpinnings and the impact of selected home environment factors on primary school learners' performance. The theoretical framework strengthens the descriptive research design as it is used to explore, describe, and document aspects of a phenomenon in real-life situation (Polit & Beck, 2012:226).

Maslow and Vygotsky's theories underpin the concepts that learning and academic success is dependent on their social interactions with their parents/caregivers and siblings and their family structure. Once a learner belongs and basic needs are met, learning will take place. These theories are relevant to this study as home environment factors and a learner's interactions with the community and members of society will have an impact on academic performance. Academic performance will also be influenced by a learner's physical and emotional needs.

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In order to elucidate the key concepts of the study, as implied by the research title and research questions (see section 1.4) the conceptual framework for the study is presented next.

## **2.4 CONCEPTUAL FRAMEWORK**

Riley (1963) states that the research process starts with a conceptual model of the phenomena being investigated. The conceptual model determines which questions are answered by the research and how empirical procedures are to be used as tools in finding answers to these questions. Mouton and Marais (1990) provide further clarification by stating that when scientific statements are integrated into conceptual frameworks, structures of science are found. Structures of science are typologies, theories, and models. It is further stated that the nature of conceptual framework is determined by the function that the framework has to fulfil (Mouton & Marais, 1990).

Typology, according to Mouton and Marais (1990), fulfils the function of classifying or categorising in terms of characteristics that they have in common with other phenomena. A model also classifies, but its basic function is that of discovering or exposing certain relationships between concepts. Bailey (1994) defines a model as a copy, replica, or analogy that differs from the real thing in some way. A social science model is one that consists mainly of words, a description of a social phenomenon, abstracting the main features of the phenomenon without an attempt to explain it or predict anything from the description. The goal is thus not necessarily to include all features of the system being modelled but only those necessary for research purposes. Barker (2003) however, sees a model as a representation of reality. A theory classifies or discovers, but its basic function is explanation or understanding. Barker (2003) defines theory as a set of interrelated hypotheses, concepts, constructs,

definitions, and propositions that present a systematic view of phenomena based on facts and observations with the purpose of explaining and predicting the phenomena. The aim of the research was to shed light on the underpinnings of underperformance of learners in primary schools and the impact that a learners' socio-economic status has on scholastic performance with references to family structure, home environment, nutrition, and sleep of a selected group of primary school learners in Tshwane.

Although numerous studies have been conducted in countries such as North- and South America (Morgan, Farkas, Hillemeier, & Maczuga, 2009), India (Krishna, 2007), Nigeria, Kenya (Michubu, 2013) and in South Africa (Heystek, 2015) on socio-economic factors on learner academic performance, the focus of this study is to ascertain the home environment factors on primary school learner's academic performance. The study's aim is to determine the influence of a learner's socio-economic situation on scholastic performance with references to nutrition, family structure, dwelling type, and sleep.

Many changes took place during this transitional period in the democracy and liberation of the New South Africa by means of pupil-centred classrooms, Curriculum 2005 and the Curriculum and Assessment Policy Statement (CAPS) (Taylor, 1995).

In a study conducted by Armstrong, Gustafsson, Spaull, Taylor, and Van den Berg, (2011) for the National Planning Committee, it is stated that in the 2007 Southern and East African Consortium for Monitoring Education Quality (SACMEQIII) survey of Grade 6 mathematics and reading, South Africa performed below most African countries that participated in the study. Of the 15 education systems that participated, South Africa has the third highest proportion of functionally illiterate learners (27%), and the fifth highest proportion of functionally innumerate learners (40%). It is also found that the majority of these children are located in the historically disadvantaged system, which still serves mainly black and coloured children. Learners in these schools typically demonstrated low proficiency in reading, writing, and numeracy (Armstrong, Gustafsson, Spaull, Taylor & Van den Berg, 2011).

In contrast thereof, learners from schools that historically served white and Indian children produced academic performance closer to the standard of developed

countries. Black and coloured middle class children are increasingly migrating to these historically white and Indian schools (Armstrong, Gustafsson, Spaul, Taylor & Van den Berg, 2011).

Literacy and numeracy testing within the National School Effectiveness Study (NSES) demonstrates that grade five learners in historically black schools are performing considerably worse on average than grade three learners in historically white schools (Armstrong, et al., 2011). Thus, by early primary school, children in historically black schools already carry an educational backlog equivalent to well over two years' worth of learning. This motivates urgent attention to issues of quality at the primary school level and even earlier in Early Childhood Development (ECD).

For further clarification and insight into the study the following concepts; academic performance, township, home environment, socio-economic factors, poverty, primary schools, nutrition and types of schools will be discussed.

#### **2.4.1 Academic Performance**

Mdanda (1997) states that academic performance is measured in terms of a learner's performance as reflected in end of the year examination schedules. This definition is echoed in the explanation of academic performance by Michubu (2013) which is of the notion that academic performance is the total score a learner obtains in an examination.

#### **2.4.2 Township**

The South African Treasury Department states that there is no formal definition of the term "township", but that it is commonly understood to refer to the underdeveloped municipal, residential areas that during Apartheid were reserved for non-whites (Africans, Coloured and Indians) who lived near or worked in areas that were designated "whites only" (under the Black Communities Act, Section 33) and Proclamation R293 of 1962, Proclamation R154 of 1983 and GN R1886 of 1990 in Trust Areas, National Home lands and Independent States (Pernegger, 2007).

### **2.4.3 Home environment**

For this study home environment will be defined as the physical structure that a learner resides in. This also encompasses the following – family structure, socio-economic status, and distance from school, diet and nutrition. These factors are out of a learner's control, as the learner is born into a family structure and socio-economic state. Woodhead (2006) further states that a child's early development is influenced and shaped by human action – including social- and cultural processes.

### **2.4.4 Socio-economic factors**

Santrock (2004:583) defines socio-economic factors as the grouping of people with similar occupational, educational, and economic characteristics. Woolfolk (2007:165) defines socio-economic situation (SES) as the relative standing in society based on income, power, background and prestige. Woolfolk further noted that every researcher will define socio-economic situation different based on the nature of the study.

### **2.4.5 Poverty**

In 1995, the United Nations has adopted two definitions of poverty. The first definition is that of absolute poverty which is a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services.

The second definition of poverty is that overall poverty is defined by the lack of income and productive resources to ensure sustainable livelihoods. This include factors such as hunger and malnutrition, ill health, limited or lack of access to education and other basic services such as increased morbidity, mortality from illness; homelessness and inadequate housing, unsafe environments, and social discrimination and exclusion (United Nations, 1995).

#### **2.4.6 Primary Schools**

In South Africa, primary schooling spans from Grade 1 to 7, and children are expected to enrol in Grade 1 at six years of age and complete Grade 7 at age 13 years. This means that the appropriate age of learners for primary education is between seven to 13 years old. The pre-grade R phase is known as the Early Childhood Development (ECD); Grade R to 3 is referred to as the Foundation Phase; Grade 4 to 6 as the Intermediate Phase; and Grade 7 to 9 as the Senior Phase (Department of Basic Education, 2009). Although a minority of 13-year olds may be enrolled beyond primary school (in secondary school), most children of this age and above may still be in primary school because of possible repetition of at least one grade.

#### **2.4.7 Nutrition**

The World Health Organisation (WHO) defines nutrition as the intake of food, considered in relation to the body's dietary needs. Good nutrition – an adequate, well balanced diet combined with regular physical activity- is a cornerstone of good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity. Basic nutrients include water, minerals, carbohydrates, fats, and proteins.

Much of this study revolves around determining how much of each of these items the body needs to take in on a regular basis in order to function at the optimum level. In a study conducted by Correa-Burrows, Burrows, Blanco, Reyes and Gahagan (2016), it was stated that brain development is strongly influenced by environmental factors, of which nutrition plays a fundamental role.

#### **2.4.8 Types of schools**

Currently there are 86 School districts in South Africa; these are grouped according to geographical boundaries and municipalities. In order to be more effective in the administration of schools in districts, circuit offices were established. These schools usually consist of a geographically proximate group of schools. This may result in a homogeneous circuit such as a group of former Model C schools in an urban area that

require relatively little direct support. It could also mean a dispersed group of rural schools, with poor infrastructure and difficult access roads that are underperforming in many respects (Department of Basic Education, 2015).

## **2. 5 CLOSING REMARKS**

This chapter presented an introduction to the chapter and a discussion of the literature review, theoretical and conceptual frameworks for this study. A few selected home environmental factors were described as part of the literature review, and include factors such as the impact of socio-economic factors on the provision of education, academic performance, township, home environment, socio economic factors, poverty, family structure, nutrition, and environment and sleep. These factors were discussed and a literature survey described education internationally and in South Africa, factors preventing learners from achieving good academic results due to socio-economic factors such as the impact of family structure, parental involvement, nutrition, or the lack thereof, as well as the impact of the learners' environment on scholastic performance. The theoretical framework consisting of Maslow's hierarchy of needs and Vygotsky's theory of Socio-culture were discussed.

One might think that underperforming of primary schools is a problem unique to Africa or South Africa. This is a universal problem, each unique in its own right. Studies has been conducted in America, Britain, Australia, New Zealand, and many other developed countries on underperforming schools and possible contributing factors that might be responsible for this underperformance.

In South Africa, though various initiatives from both Government and the private sector, some of the possible contributing factors are in process of being addressed. The researcher is however of the opinion that these initiatives might only be treating some of the most obvious symptoms and not necessarily the cause.

The next chapter (Chapter 3) describes the research methodology this researcher employed to ascertain the impact of selected home environment factors on a primary school learner's academic performance.



## **CHAPTER 3: RESEARCH DESIGN AND METHODS**

### **3.1 INTRODUCTION**

The relationships of selected home environment factors with primary school learners' academic performance was examined to enable educational practitioners to respond to the underlying issues that were impacting academic performance of learners of primary schools. The theoretical framework of Maslow's hierarchy of needs (Maslow, 1943) and Vygotsky's social constructive theory (Vygotsky, 1978) underpinned this study.

The previous chapter provided an overview of the outline of contextual, theoretical, and conceptual frameworks of the study, reviewing a collection of interested theories which guided the research. It set forth the literature regarding the impact of home environment factors (2.2.2) such as poverty (2.2.3), family structure (2.2.4), nutrition (2.2.5) and sleep (2.2.6) on learner's academic performance in international countries. Literature concerning the various home environment factors which could possibly contribute to primary school learners not achieving their full potential was discussed. A selection of possible contributing factors was researched to determine the impact of those selected home environment factors on primary school learners' academic performance, as well as the theoretical framework that guided the study. This chapter discussed the research design and methods appropriate to this study, which was an explanation of the impact of selected home environment factors with primary school learners' performance, influencing and/or causing learners to not achieve their academic ability, such as nutrition, the influence of family structure, and sleep deprivation.

The selection of the respondents, data collection procedures, an analysis of the data, the reliability and validity and ethical issues of the study and limitations in the methodology, are also discussed in this chapter.

### **3.2 RATIONALE FOR EMPIRICAL RESEARCH**

The aim of this study was to ascertain the impact of selected home environment factors on primary school learner's academic performance. Since there is on-going research on this matter to determine the reasons why learners do not achieve academic success at school, this study could possibly give insight as to the impact a child's home environment has on academic achievement. Through this study one could expect to gain a wealth of in-depth information to ascertain whether selected home environment factors impact primary school learners' academic performance or could there be other factors at play in underperforming of learners'. This could possibly lead to further studies to gain knowledge and understanding in this matter. For this study, the researcher made use of the quantitative research approach. The data obtained, when analysed, will highlight the contributing impact of home environment factors on learner's academic performance. This would be investigated through questionnaires that the learners completed.

### **3.3 RESEARCH DESIGN**

De Vos, Strydom, Delport and Fouché (2011:143) describe a research design as the focus on the end product and all the steps in the process to achieve the expected outcomes. Kumar (2005:195) stated that an attribute of a good study design is that it explains the details with such clarity that it would enable another researcher to do exactly as it had been done. Delport and Roestenburg (in De Vos, et al., 2011:171) further state that research design is the plan, recipe, or blueprint for the investigation, and, as such, provides a guideline according to which selection can be made of which data-collection method(s) will be most appropriate to the researcher's goal and to the selected design.

The research strategy that was used is that of descriptive and interpretive design. The purpose of a descriptive design is typically to provide a summary of an existing phenomenon by using numbers to characterise individuals or groups. It assesses the nature of the existing conditions (McMillan & Schumacher, 2014:30). For this study, a non-experimental relationship question was used by making use of correlational procedures (McMillan & Schumacher, 2014:70). McMillan and Schumacher (2014:70)

state that non-experimental relationship questions the relationship of one variable to another. It is further stated that there are two types of non-experimental relationships, the first being to analyse the differences of comparisons between groups, and the second uses a correlational procedure (McMillan & Schumacher, 2014). This is done with two continuous variables, for example socio-economic status and academic performance. The intent was to measure the relationship with a correlational coefficient – in this study the relationship of the selected home environment factors was measured against learner performance.

These notions strengthened De Vos's (1998:6) which states that research serves the practical function of providing situation-specific data to inform action about practice, the operations of programmes or efforts to achieve social change, McMillan and Schumacher's (2006:22) view that a research design describes how the study was conducted and Thyer (1993:94) who describes a research design as a blue-print or detailed plan for how the research study is to be conducted.

Bless, Higson-Smith and Kagee's (2007:71) definition of a research design summarises a research design as a "specification of the most adequate operations to be performed in order to test a specific hypothesis under given conditions". In order to make sense of this study research paradigm, research approach and research strategy will be further discussed in this section.

### **3.3.1 Research paradigm**

"A paradigm is a set of beliefs that constitutes the researcher's ontology (i.e. the researcher's perceptions regarding the nature of reality or the world and what there is to know about it); epistemology (i.e. the researcher's perceptions of where he stands in relation to reality of the world) and methodology (i.e. the researcher's perception of how we can find out about reality or the world) (De Vos, 1998:240).

This study was conducted in the social constructivism paradigm, as it relies on the social interactions and cultural context to explain learning (Woolfolk, 2007:346). Vygotsky believed that social interaction, cultural tools, and activity shape individual development and learning (Woolfolk, 2007:346). Cobb and Bowers (1999, in Woolfolk,

2007:347) affirm Vygotsky's notion that learning is inherently social and embedded in a particular cultural setting.

Bruning, et al. (2004, in Woolfolk, 2007: 344) state that "most constructivist share two main ideas: learners are active in constructing their own knowledge and that social interactions were important to knowledge construction". Marlowe and Page (2005:7-9) explain that constructivism is about "constructing knowledge not receiving it...it is about that thinking and analysing, not accumulating and memorising... it is about understanding and applying, not repeating back; it is about being active and not passive". Constructivism can then be defined as a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own "rules" and "mental models," which we use to make sense of our experiences (Marlowe & Page, 2005). Learning, therefore, is simply the process of adjusting our mental models to accommodate new experiences (Funderstanding, 2003:1, in Sparapani, 2013:13). Although constructivism is usually used in qualitative research, it was used in this study as the foundation that learning is inherently social and embedded in a particular cultural setting, and that social interaction, cultural tools, and activity shape individual development and learning as an ontological viewpoint for truth seeking and to build a rich picture, supported by quantitative data, underpinned by a structured methodological process based on objective methods (Taber, 2009).

### **3.3.2 Research approach**

At present there are two well-known and recognised approaches in research, namely the quantitative and the qualitative approaches. Each of these approaches has its own purposes, methods of conducting research, and strategies for collecting and analysing data.

The approach that was used for this study was the quantitative approach, descriptive and non-experimental. Leedy and Ormrod (2005:94-97) identify characteristics of the quantitative approach, such as it is used to answer questions about relationships among measure variables, as its intent is to establish and validate relationships and to develop generalisations.

Research gives rise to the development of a research problem, which takes on the form of a testable hypothesis. Fouché (2002:16) adds that when using a quantitative approach, as used in this research, a research problem and hypothesis are formed. A hypothesis is a theoretical statement of the relation between two or more variables. "Hypotheses are always in declarative sentence form, and they relate, either generally or specifically, variable to variables" (Kerlinger, 1986, in De Vos, 2002:36).

Statistical procedures were used to analyse and draw conclusions from the data and the study usually ends with confirmation or disconfirmation of the hypothesis that were tested. The hypothesis that was tested is home environment factors do not have an impact on learner academic performance. After the confirmation or disconfirmation of the hypothesis, the relative influence of the selected home environment factors will be looked at to establish the degree of influence these factors have on learner academic performance.

Maree and Pietersen (2007:152) state that non-experimental designs were mainly used in descriptive studies, in which the units that have been selected to take part in the research were measured on the relevant variables at a specific time and that no manipulation had taken place. The most widely used non-experimental research design is a survey. Leedy and Ormrod (2005:183-184) describe a survey as a series of questions that are posed to willing respondents, it summarizes their responses with statistical indexes, and then draws conclusions about a particular population from the responses of the sample group.

Babbie (2010) and Muijs (2010) define quantitative research methodology as methods that emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon.

### **3.3.3 Research type**

Babbie (2011:329) defines a case study as the in-depth examination of a single instance of some social phenomenon, and its chief purpose can be descriptive and/or the in-depth study of a particular case can yield explanatory insights.

Surveys are the most widely used non-experimental design in social science research, due to its versatility as it can be used for all types of study. Surveys are done mainly to describe same sample in terms of single proportions and percentages of people who respond in some way to different questions (Punch, 2005:75).

Surveys have certain characteristics: surveys collect data from large samples of people and it presents respondents with a series of questions to be answered. The most frequently used data collection method for conducting survey research includes written questionnaires (Maree & Pietersen, 2007:155).

A survey is where the researcher asks people questions in a written questionnaire, and then records the answers. The researcher does not manipulate the situation. The researcher summarizes answers to questions in percentages, tables, or graphs. According to Neuman (1997:31), surveys give the researcher a picture of what many people think or report doing.

The questionnaire was developed by the researcher with the assistance of a statistician. The questionnaire was used to obtain an overall indication of the various home environmental factors of the learners. Refer to the attached Appendix F for a copy of the Questionnaire.

The researcher delivered the questionnaires by hand so that respondents could complete them in their own time in an activity period. The questionnaires were collected after the respondents were done.

### **3.4 RESEARCH METHODS**

Punch (2005:267) states that, procedures used in data collection should be clearly described and that the description should also show possible threats to the validity of data. McMillan and Schumacher (2014:16) further define research methods as the ways in which one collects and analyses data and that these methods have been developed for acquiring knowledge reliably and validly.

#### **3.4.1 Sampling**

According to the 2015 Department of Basic Education EMIS Master file, there are 582 schools in the Tshwane Metropolitan Area. Of these, 465 are Government or State owned schools, 326 are Intermediate and Primary schools and 207 are schools in the traditional informal settlements to the North, East, South, and West of the City (Department of Basic Education, 2015).

The selected school is situated in a suburb North West of the City. It was previously a white suburb. Due to the demographical changes and the aging of the inhabitants, the school enrolment numbers went down and the school governing body decided to change the language policy of the school, to dual medium (Afrikaans and English). Currently the school's Language of Learning and Teaching (LoLT) is English. The majority of the learners enrolled in the school are African children, followed with a few coloured, White and Indian children.

The respondents' socio-economic status differ as some are residing in areas in close proximity to the school, while others are residing in informal settlement areas to the North, East, and West of Tshwane with lower socio-economic circumstances and travel to school. Other differences included, the family status of these learners as there are both-parent families, single parent families, and children living with relatives. Although most of the learners in the school are African, the study also included coloured, Indian and White learners.

A primary school situated in Tshwane was used for this study. This primary school was selected by means of convenience and due to the fact that the home

environments of these learners are diverse. Respondents are the individuals who participate in the study, and from whom data are collected. The sample can be selected from a larger group of persons, selected as the population. Arkava and Lane (1983:27) conclude that the term universe refers to all the potential subjects who possess the characteristics in which the researcher is interested. McBurney (2001:248) defines the population as the sampling frame. Researchers study the sample in an effort to understand the population from which it was drawn.

For this study Grade 5, 6, and 7 learners from a city school completed the questionnaires as it is more representative of the ethnography of the schooling environment. The learner distribution is in the immediate area of the school, from previously disadvantaged areas and suburbs in Tshwane. The school has an enrolment number of 510 learners ranging from grade one to grade seven (Learner Distribution PRP01-2017(a)). The number of learners who reside in close proximity or in the immediate area around the school amounts to 191 (37,5%) learners, 211 (41,4%) of the learners reside in informal settlements to the North, East, and West of Tshwane, while the remaining 108 (21,1%) of learners reside in suburbs in Tshwane. Sampling, according to Kerlinger (1986:109-110), means taking any portion of a population as representative of that population. This definition does not say that the sample taken – or drawn, is in fact representative. It says rather, taking a portion of the population and considering it to be representative (Kerlinger, 1986:109-110).

The researcher involved all the learners in Grade 5 to Grade 7 from the selected school in the study. Each one of the learners received an information letter, parental consent, and learner ascent forms. There were 61 boys and 89 girls involved in this study, a total of 150 respondents. The ethnic backgrounds of these learners are mostly African, 138 African learners, six White learners, four Coloured learners, and two Indian learners.

Gravetter and Forzano (2003:465) state that the term sample implied the simultaneous existence of a population of which the sample is a smaller section, or a set of individuals selected from a population. Researchers study the sample in an effort to understand the population from which it was drawn. On the basis of the researcher's knowledge of the population, a judgement is made about which respondents should



be selected to provide the best information to address the purpose of the research (McMillan & Schumacher, 2006:126).

### **3.4.2 Data collection**

Bless and Higson-Smith (1995:43) state that questionnaires allow the researcher to access information that is not directly observable. Monette, Sullivan and De Jong (2008:158) further expand this notion that surveys have certain characteristics as it collects data from a large sample and that it presents respondents with a series of questions to be answered.

Data was collected by making use of a survey. The research techniques that will be used for this study is by means of questionnaires. "Questionnaires .... allow the researcher to access information that is not directly observable" (Bless & Higson-Smith, 1995:43). McMillan and Schumacher (2006:194) further state that questionnaires are the most widely used technique for obtaining information from subjects and it is relatively economical and can ensure anonymity. Babbie (2007:246) further adds that questionnaires are designed to obtain information appropriate for analysis.

Respondents from the sample school answered ethnographic questions for statistical purposes, as well as answered open- and closed ended questions (See appendix F). In the closed form format, respondents choose between predetermined responses, or an open form, in which the subjects wrote in any response they want (McMillan & Schumacher, 2006:197).

Personal questionnaires were used. De Vos (1998:154) describes personal questionnaires as questionnaires that were handed to the respondents who completed it on his/her own, but the researcher was available in case problems were experienced. The researcher limited his/her own contribution to the completion of the questionnaire to the absolute minimum, as the researcher remained in the background and, at most, encouraged the respondents with a few words to continue with their contribution or led them back to the subject.

The questionnaires were handed to the respondents, who completed it on their own, but the researcher was available in case problems were experienced. The researcher's contribution was limited to the absolute minimum as the researcher remained largely in the background.

Royse (2004:118) states that a pilot test is a prerequisite for the successful execution and completion of a research project as it expands knowledge. A pilot test was conducted in order to bring possible deficiencies to the fore and to test the measuring instrument and to prevent one of the most common errors in conducting research by neglecting a pilot test.

The pilot study was used to test the measuring instruments, to determine the number of codes per questions and to test that the sampling frame was suitable. Forty-eight Grade 7 learners and nine learners from Grades 5 and 6, that were leaving the school, were used to conduct the pilot study.

### **3.4.3 Data analysis**

Blaikie (2000:236-237) categorises quantitative methods of data analysis into four main categories, namely descriptive, association, causation and inference. Sarantakos (2005:364) states that data preparation included checking and editing and thereafter coding it. Coding means the systematically reorganising of raw data into a format that is machine readable (Kreuger & Neuman, 2006). Once the data was collected, it was prepared for data entry.

A code sheet was compiled where every response and non-response was entered onto a code sheet. This was done to ensure that all responses to every question could be accounted for in the analysis of the data and for checking for data entry errors. Thereafter, a spreadsheet consisting of columns that contained the variable or question responses and rows with respondents' answers were set up, and the respondents' answers were entered into the spreadsheet.

Basically data analysis entails that one variable is analysed, with the view to describe that variable. All the data gathered on that one variable need to be summarised for

easy comprehension and utilisation. This summary could consist out of tables, graphic display or visual representation of the data. For this study, statistical analyses were performed due to the quantitative nature of the study. Statistical analysis was performed with the statistical programme R3.4.1 (R is a system for statistical computation and graphics. It is an interactive programme, which allows the user to enter a question and it is answered on the command line. This programme includes the mean function (used for finding the mean or average of the data) (R Development Core Team, 2017).

When data measurements contain rank order information, computing the standard descriptive statistics (e.g., mean, standard deviation) is sometimes not the most informative way to summarize data.

For this study, the categories that were used were mainly that of descriptive statistics with some association statistics. Descriptive methods were used to report the distributions of a sample population across a wide range of variables. Techniques of association are then used to establish whether a position of one variable is likely to be consistently associated with another variable (Blaikie, 2000:236-237). The analysis of research data, however, does not in itself provide the answers to research questions. Interpretation of the data is necessary. To interpret is to explain, to find meaning (Kerlinger, 1986). Miles and Huberman (1994:10) regard data analysis as actually consisting of three steps, namely data reduction, data display, and verification.

Data was summarised, described, and organised in accordance with the objectives of the study. The analysis was furthermore supported by figures and graphs. Morse is of the opinion that data analysis is a process of fitting data together, making the invisible obvious and linking and attributing consequences (Morse, 1994). As soon as data collection begins, the researcher begins preparing data for analysis.

### **3.5 VALIDITY AND RELIABILITY**

A pilot test was conducted so ensure that the questionnaire was reliable and to enable the researcher to make the necessary adjustments. The questions in the

questionnaires were constructed based on literature and theory relevant to the environment of the respondents used in the study.

Babbie (2007:146) refers to validity as the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration. This strengthens the notion of Salkind (2006:113), that validity refers to truthfulness, accuracy, authenticity, genuine and soundness as synonyms, and that the instrument that is used actually measures what needs to be measured. Delport and Roestenburg (2011:172) state that to obtain valid and reliable data one must ensure, before implementing the study, that the measurement procedures and the measurement instrument to be used have acceptable levels of reliability and validity.

Rubin and Babbie (2001:194) further state that content validity is established on the basis of judgements; that is the researcher and other experts make judgements about whether the measure covers the universe of facets that make up the concept.

Face validity refers to the appearance of what is measured and appears to be relevant to those who will complete it. It is therefore essential to structure an instrument so that it not only measures the attributes under consideration, but also appears to be a relevant measure of those attributes (Gravetter & Forzano, 2003:87).

Construct validity is defined by Babbie (2007:14) as being concerned with the meaning of the instrument and to establish construct validity, the meaning of the construct must be understood and the propositions the theory makes about the relationships between this and other constructs must be identified. It is thus based on logical relationships among variables.

When looking at validity during a research study, two aspects, internal and external validity, need to be taken into consideration. Internal validity refers to the extent to which the research design and data obtained will allow the researcher to draw accurate conclusions about the relationships within the data (Leedy, 2001). External validity refers to the extent to which the results obtained during the study can be generalised to other contexts (Leedy, 2001).

Reliability, according to Salkind (2006:106), refers to dependable, consistent stable, trustworthy, predictable, and faithful as synonyms. The reliability of a measurement procedure is thus the stability or consistence of the measurement. Kreuger and Neuman (2003:179-180) and Salkind (2006:108) all agree that it is rare to have perfect reliability and recommend procedures to increase the reliability of measures. The researcher eliminated items that were unclear as respondents may respond to it differently. The conditions under which the respondents completed the questionnaires were standardised as well as the instructions, as the respondents completed it during an activity period, where the researcher was available to clarify questions should a respondent have questions. The degree of difficulty was also moderated as children completed the questionnaires.

Bias is any condition or influence that misrepresents the data obtained (Leedy, 2001). As noted during the discussion on internal and external validity, various biases could have an influence on the current study.

### **3.6 ETHICAL MEASURES**

Research should be based on mutual trust, acceptance, cooperation, promise, and well-accepted conventions and expectations between all parties involved in a research project (Sarantakos, 2000:20-21). Strydom (2011:113) states that for researchers in the social sciences, there are unique ethical problems and ethical issues are that are pervasive and complex, since human beings are the objects of the study and data should never be obtained at the expense of human beings. This statement confirms Babbie's (2001:470) notion that anyone in research needs to be aware of the general agreement about what is proper and improper in scientific research. Glicken (2003:237) confirms that too often ethical lapses take place, due to interview data that is faked, the inaccurate reporting of results or bias shown in favour of the researcher's hypothesis.

Strydom (2011:114) further states that ethical guidelines also serve as standards and is a basis upon which each researcher ought to evaluate his or her own conduct.

For this research, Ethical Clearance was obtained from Unisa's Research Ethics Committee. Consent was also obtained from the Gauteng Department of Education to conduct research. A letter informing the Principal and the chairperson of the School Governing Body of the researcher's intent to do research at the school was sent to the school.

The principal of the sample school and the school governing body gave consent that learners could complete the questionnaires. Thereafter, an information leaflet and Consent form was sent to the parents of the respondents of the sample primary school, the learners who wished to participate also completed the child assent letters. Before the questionnaires were administered, the procedures were explained to the respondents where they had the opportunity to abstain from taking part if they wished to do so.

All the data collected will ensure the anonymity of the sample school and the learners. All data collected will be used for research/study purposes only and no information will be disclosed to a third party. The researcher also intends to uphold the Code of Ethics for educators as determined by the South African Council of Educators. The researcher has an ethical obligation to protect subjects against any form of physical and/or emotional harm (Leedy, 2001). Informed consent will be obtained by providing a full explanation of the study. This information will be provided in written format, in English. Respondents will be given the opportunity to terminate their participation at any time, without penalty. It is also important to note, that since the respondents to be used in this study, are minors – informed consent should be obtained from the minor's parents or caregivers (McMillan & Schumacher, 2006).

### **3.7 CLOSING REMARKS**

This study was based on the social constructivism paradigm, as it relied on the social interactions and cultural context to explain learning. The method of research that was used for this study was the quantitative research approach to research. Data was collected by means of questionnaires that were completed by the learners of the sample school. For this study, a primary school in Tshwane was used. It was decided to use the Grade 5, 6, and 7 learners to complete questionnaires. The selected

learners were chosen based on the area in which they resided – in close proximity to the school, informal settlements to the North, West, and East of Tshwane and suburbs in the Tshwane metropolitan area.

Chapter 4 will consist of the statistical analysis and findings of the questionnaires that the respondents completed.

## **CHAPTER 4: DATA ANALYSIS AND INTERPRETATION**

### **4.1 INTRODUCTION**

Chapter 1 laid the foundation for this study. This study was a quantitative study, based on the theories of Vygotsky's Social Constructive theory and Maslow's hierarchy of needs. The problem statement (1.5) to this study was "What is the impact of selected home environment factors on primary school learners' academic performance?" With the sub-questions being:

- To determine the relationship between poverty and scholastic performance.
- To ascertain the relationship between family structure and scholastic performance.
- To determine the influence of the type of dwelling on scholastic performance.
- To determine what influence nutrition has on a learner's scholastic performance.
- To determine if sleep deprivation has a noticeable influence on learners' academic performance.

By studying the literature in Chapter 2, the researcher was given a broader viewpoint of the study and the learning theories which encompass the study. In studying the research, it was evident from the conclusions that home environmental factors do have an impact on learners' academic performance. Studies concluded that due to increasing financial stress and limited resources (2.2.1), single-parent families are not fully involved in or could assist their children with schoolwork (2.2.2) and a child's environment have an impact on a learner's academic performance (2.2.3). Other factors that studies revealed that have an impact on academic performance include nutrition (2.2.4) and sleep deprivation (2.2.5). Murnane (2007) concludes that children from low-income families are at increased risk of leaving school without graduating resulting in unemployment or unskilled labour. This in turn has an influence on their families. The National Institute of Child Health and Human Development Early Child Care Research Network (2005) reports that children in chronically impoverished families have lower cognitive and academic performance and more behaviour problems than children who are not exposed to poverty. This is partially explained by



a lack of stimulating behaviours and home experiences among low-income families. The above strengthens the study of Lee and Burkman (2002) who find that most American students who start school significantly behind their peers can never close the readiness gap. Rather, the gap tends to widen as they move through school. Zigler, Gilliams and Jones (2006:21) state that “school readiness has been shown to be predictive of virtually every educational benchmark (e.g., achievement test scores, grade retention, special education placement, dropout, etc.)”

Nutrition and sleep also played an important role in the academic success of learners. Chapter 3 was a discussion on the research methodology that guided this study. The research design (3.3) and methods (3.4) as well as the data collection process (3.4.2) were discussed. Validity, reliability, and bias (3.5) as well as ethical measures (3.6) were discussed.

This chapter focuses on the data analysis and the interpretation and presents the results of the study.

Data analysis is the technique which a researcher uses to convert data to a numerical form and subject it to statistical analysis, to produce data to an intelligible and interpretable form so that relation of research problems can be studied and tested to draw conclusions (Rubin & Babbie, 2005:552). The data was collected by means of a survey, which primary school learners’ in a primary school in Tshwane completed due to their social economic situation. The data was collected through questionnaires and are presented with the help of tables and statistical results.

## **4.2 RESEARCH PROCESS**

After a pilot test was conducted and the questionnaire refined, the researcher handed out 212 parental consent letters. In the end 150 learners participated, 24 learners or parents did not concede to take part in the study. The remainder of 38 learners did not return the consent forms even though numerous efforts were made to get the letters back. Some of the reasons being given were that their mothers were not at home to sign or they forgot the letters. In the end the researcher used two sets of data, the first being the questionnaires that the learners completed and the second being data

containing demographical information obtained from the school. This was done as a means to correlate the data of the respondents' academic achievement to their social economic circumstances, family structure, nutrition, and sleep patterns. It was noted that some respondents lived with a family member during the week and weekends with their parents and that learners regard cousins or nieces and nephews as their siblings. The questionnaires that the learners completed were done anonymously. This provided challenges as the data from the questionnaire that the respondents completed and the data obtained from the school could not be directly tied to each other to ascertain if a correlation existed between the home environment factors and academic performance. The data obtained from the school contained the learners' biographical information as well as academic performance information, while the learner questionnaires (done anonymously) contained the home environment factors. A one-to-one relationship between a student's experience at home and academic performance could therefore not be established directly.

McMillan (2014:128) refers to two general characteristics of validity in studies, namely population external validity, where respondents in a study have certain characteristics that can be used to make generalisations about other people, with the same characteristics and ecological external validity which refers to the conditions of the research and the extent to which generalising the results is limited to similar conditions.

Maree and Pieterse (2007:152) state that non-experimental designs are used in descriptive studies in which the respondents that takes part in the research are measured on all the variables at a specific time. The researcher has taken all steps possible to diminish the threats to internal and external validity.

#### **4.3 DATA ANALYSIS**

Two sets of data were used for this study, one being the questionnaires that the learners completed and a set of data that was obtained from the school containing demographical data for the learners. This data is confidential and therefore not be included as an Appendix to this study. Statistical analyses were performed due to the quantitative nature of the study, using the statistical programme R3.4.1 (R Core Team,

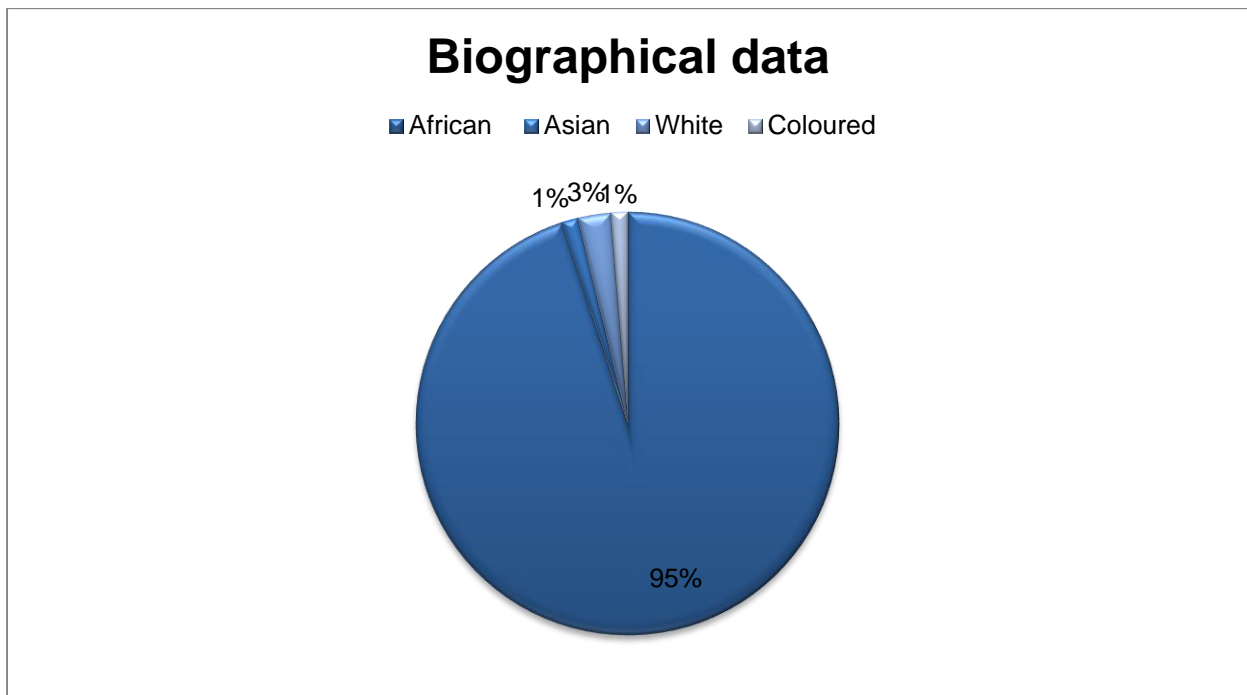
2017). This Statistical programme was used due to data measurements which contained rank order information (the order in which data is entered in) and computing the standard descriptive statistics (e.g., mean, standard deviation). R is an interactive programme, which allows the user to enter a question and it is answered on the command line. This programme includes the mean function (used for finding the mean or average of the data).

#### 4.3.1 Biographical data

The sample school had 553 learners enrolled at the time of the study. Only the Grade five, six, and seven learners participated in this study. The Intermediate-/Senior Phase consisted out of 283 learners. A total of 150 learners participated in this study, 53% of the learners in the Intermediate/Senior Phase participated (Appendix D). This represents 27% of the school enrolment.

**Table 4.1: Biographical composition of sampling**

<b>Race</b>	<b>Male</b>	<b>Female</b>	
African	56	86	
Asian	2	0	
White	3	1	
Coloured	0	2	
Total	61	89	150



**Figure 4.1: Biographical data of the respondents that participate in the research**

Table 4.1 and Figure 4.1 contain the data about the respondents that took part in this study. The data showed that 95% of the respondents were from African origin, White, Indian and, Coloured respondents also participated.

#### 4.3.2 Family Structure

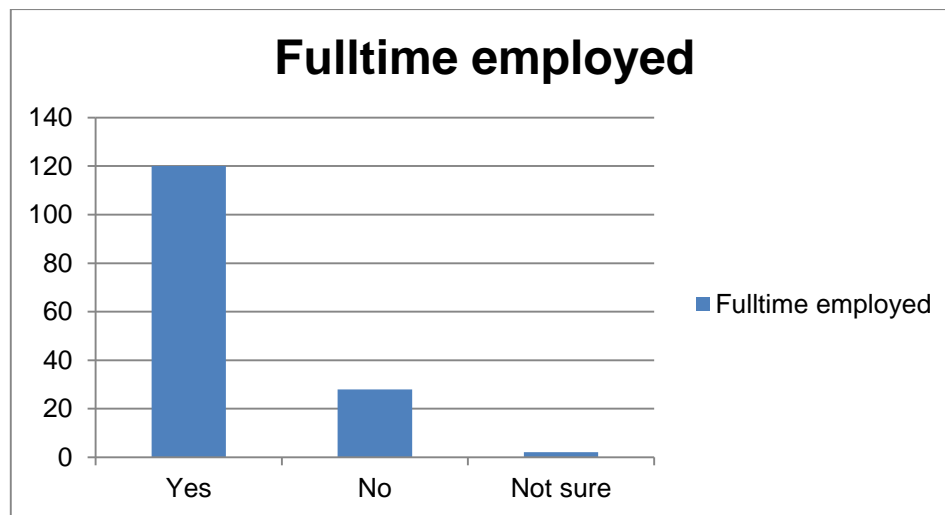
As the researcher worked with two sets of data, one, the questionnaire, the respondents completed and the second being biographical information obtained from the school. The results were inconclusive.

**Table 4.2: Family Structure**

Family structure	Set 1: Questionnaire	Set 2: Information obtained from school
Both parents	75	69
Single parents	57	52
Step-parents	6	13
Other family members/grandparents	6	12
Older siblings	4	3
Neighbours / Friends	2	1
Total	150	150

The data obtained from the learners and the school showed that the information filled in by the respondent and the parent/guardian does not correlate. This could possibly suggest that the information could be outdated.

#### 4.3.3 Parental Employment Information



**Figure 4.2: The employment status of parent or main caregiver**

Figure 4.2 contains the data of the parent or main caregivers' full time employment status. The majority of the respondents' parents were full time employed.

#### 4.3.4 Employment sector

The respondents were asked in what employment sector their parents/caregivers were employed in.

**Table 4.3: Employment sector**

Employment sector	Frequency	Percentage
Self employed	14	9.33%
Domestic Worker	5	3.33%
Retail	14	9.33%
Administration/Government	51	34%
Professional	21	14%
Other	45	30%

Table 4.3 showed that the majority of the parents/caregivers of the respondents were fulltime employed in Administration or the Government sector. This constitute 34% of the employment sector, followed by other employment sectors (30%) such as skilled workers, professional sector (14%), including teachers, pharmacists, and accountants, the self-employed (9.33%) and retail sectors (9.33%) and finally domestic workers which consisted out of the smallest percentage (3.33%).

#### 4.3.5 Grants

The participants were asked if their parent/main caregiver received a grant and the type of grant.

**Table 4.4: Grants**

Grant	Frequency	Percent	Explanation of the type of grant that the parent/main caregiver receive	Frequency	Percent
Yes		10.67%	Child care	12	8%
No		45.33%	Disability	1	0.67%
Not sure		44.00%	Old Age	3	2%

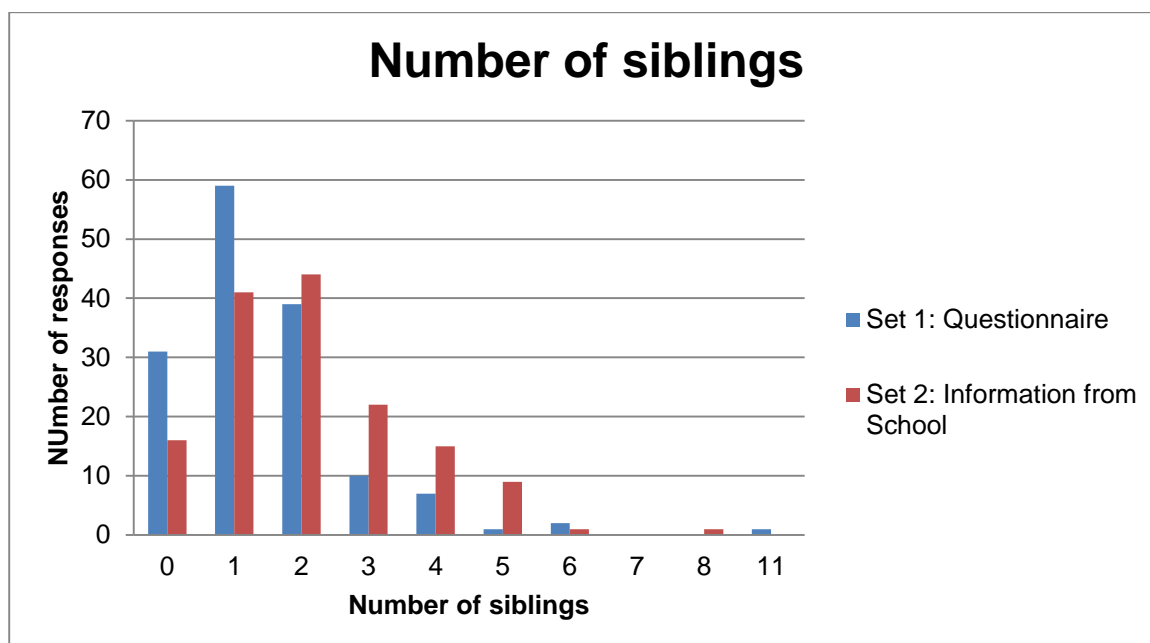
Table 4.4 gives an indication of the percentage of respondents' households receiving grants and an explanation of the type of grant that the parent/main caregiver receives. The majority of respondents' households (45.33%) do not receive any grants, whereas 10.67% indicated that their households do receive a grant. From the households that do receive a grant 8% is for childcare, 2% for old age and 0.67% for disability. Sixty-six of the respondents (44%) were not sure if their household received a grant.

#### **4.3.6 Number of siblings**

The respondents were asked to write the number of siblings in the household. Two sets of data were used – information obtained from the questionnaire and the other biographical information that was obtained from the school. It also needs to be mentioned that due to the fact that some of the learners reside with an aunt or uncle, they view their cousins as a sibling. It should also be noted that some learners have much older siblings, that may or may not be living with them and some of them might have their own children, which might be regarded as a sibling by the respondent.

**Table 4.5: Number of siblings**

Number of siblings	Set 1: Questionnaire	Set 2: Information from school
0	31	16
1	59	41
2	39	44
3	10	22
4	7	15
5	1	9
6	2	1
7	-	-
8	-	2
11	1	-

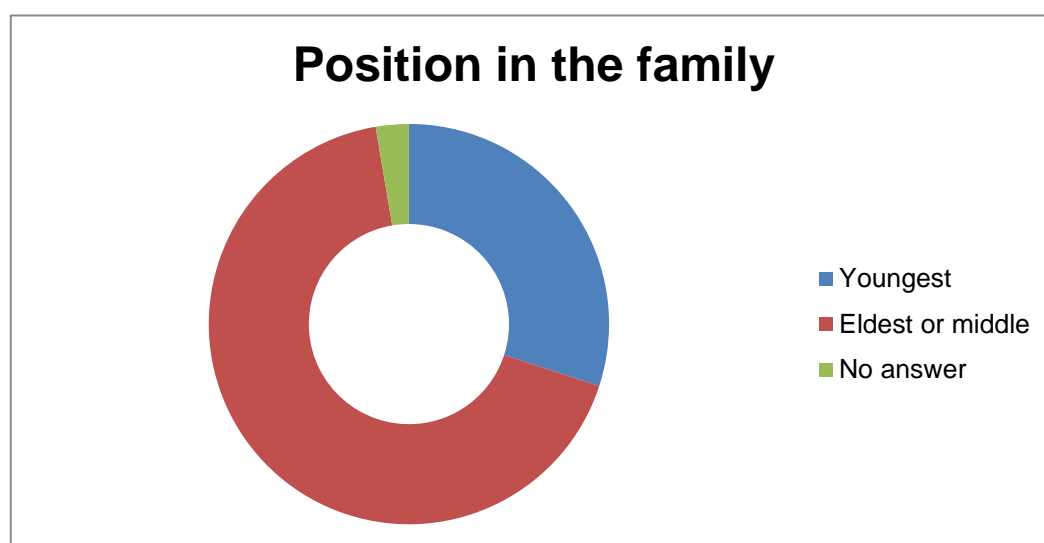


**Figure 4.3: Number of siblings**

The number of siblings in Table 4.5 and Figure 4.3 gives a breakdown of siblings or children living in a specific household. The data obtained from the school only indicated the number of siblings for the respondents.

#### 4.3.7 Position in the family

The respondents were asked to indicate his/her position in the family.



**Figure 4.4: Position in the family**



The data indicated that the majority of the respondents were either the eldest or the middle child in the family and the minority was the youngest child in the household.

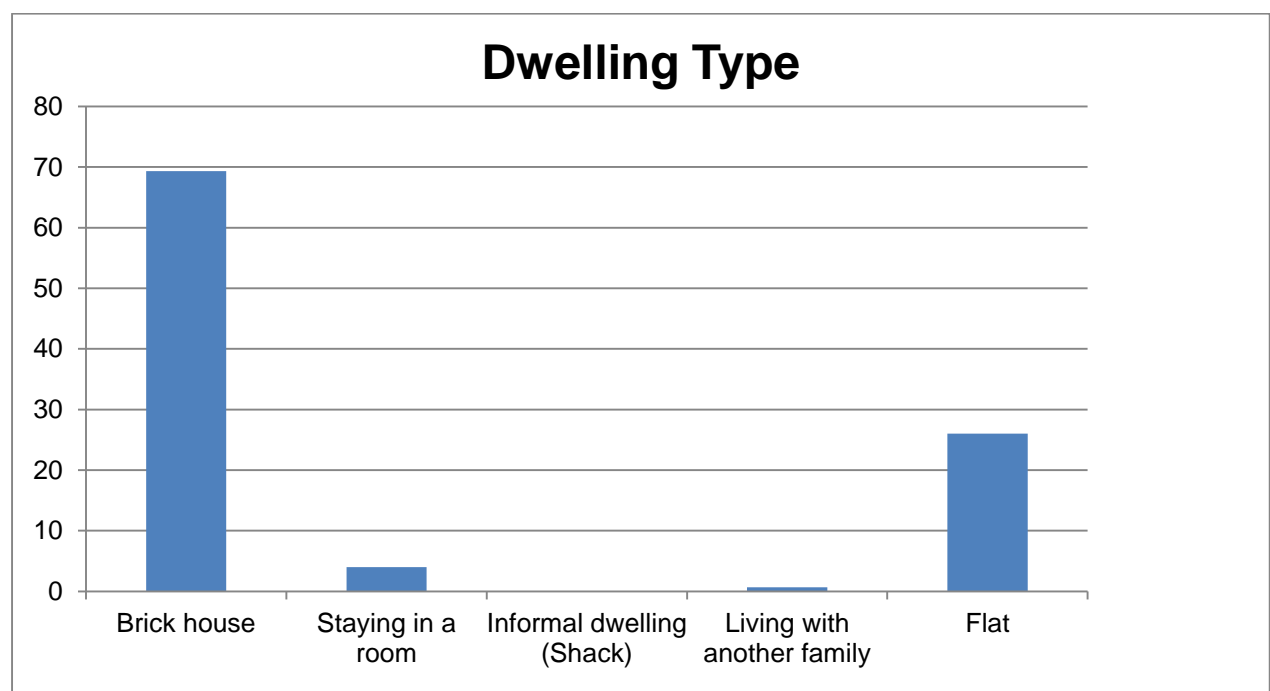
#### 4.3.8 Dwelling type and municipal infrastructure

Respondents ticked the type of dwelling they reside in and indicated if they have municipal infrastructure at their house.

**Table 4.6: Dwelling type**

Dwelling type	Frequency	Percentage
Brick house	104	69.33%
Staying in a room	6	4%
Informal dwelling (Shack)	0	0%
Living with another family	1	0.67%
Flats	39	26%

Table 4.6 gives an overview of the dwelling type of the respondents.



**Figure 4.5: Dwelling Type**

The majority of the respondents (69.33%) resided in a brick house, followed by 26% that resides in flats in the near proximity of the school. None of the respondents stayed in an informal dwelling or shack and 0.67% lives with another family.

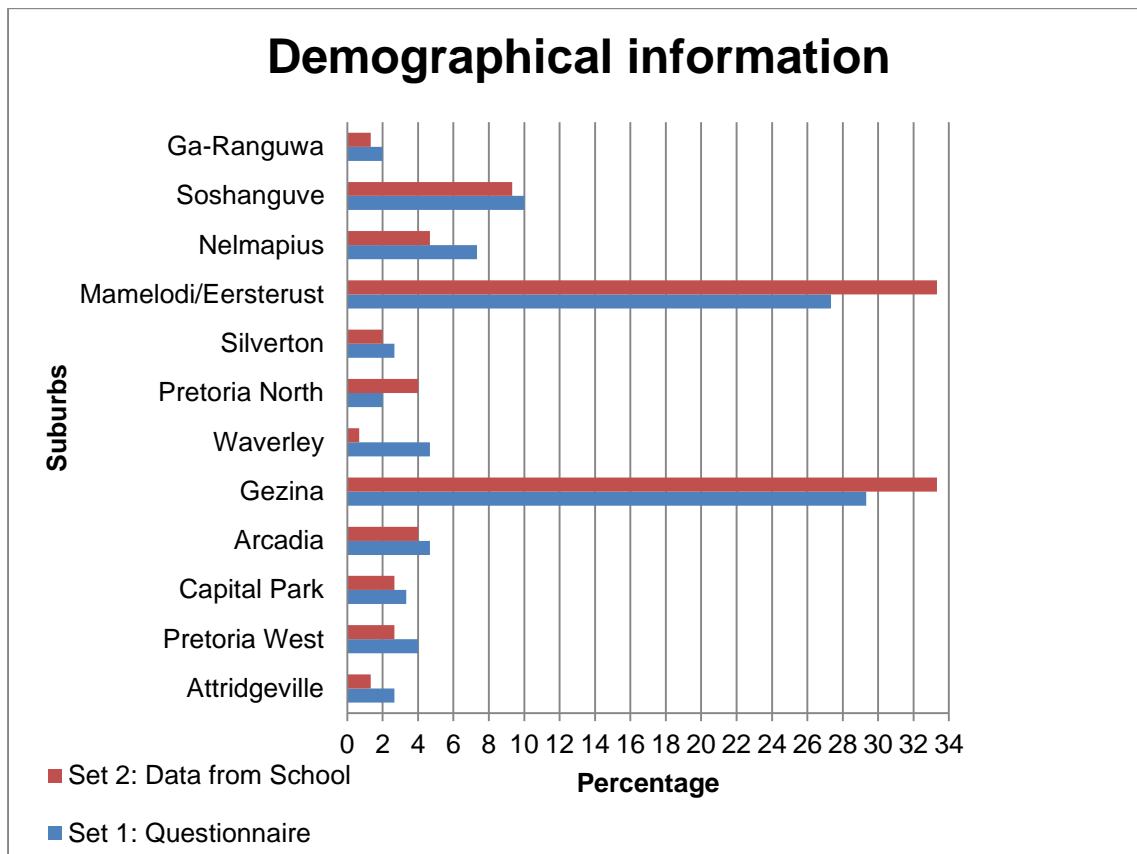
**Table 4.7: Municipal infrastructure**

	Yes		No		No answer	
	frequency	%	frequency	%	frequency	%
Electricity in dwelling	149	99.33%	0	0	1	0.67%
Running water in dwelling	143	95.33%	6	4%	1	0.67%

Table 4.7 reveals that the overwhelming majority of respondents' had municipal infrastructure such as electricity (99.33%) and water (95.33%) in their households.

#### **4.3.9 Demographical information**

This question aimed to gain information on the residential information of the respondents, to determine the demographical information of the respondents. Two sets of data were used. The inconsistencies could possibly be attributed to respondents maybe residing with a person other than biological parents in another area during the week or that the family relocated, and the demographical information was not updated at the school.



**Figure 4.6: Demographical information of respondents**

Figure 4.6 indicates the demographical information of the learners. The data obtained from the school indicated that the majority of the learners at the school reside in Mamelodi/Eersterust and Gezina. This is also indicated from the data obtained from the questionnaires.

#### 4.3.10 Mode of transport

The mode of transport question allows the researcher to gain insight into how learners get to school on a daily basis. This also gave an indication of the departure time of respondents in the morning to get to school and their arrival time at home in the afternoons.

**Table 4.8: Mode of transport**

Mode of transport	Travel with parents	Private transport	Public transport	Walk
Frequency	42	76	12	19
Percentage	28.00%	50.67%	8%	12.67%

Table 4.8 indicates that 50.67% of the respondent's main mode of transport is private transport that transport them on a daily basis from their area of residence, followed by 28% who indicated that they travel with their parent/main caregiver to and from school, followed by 8% who travels by means of public transport/municipal transport, and 12.67% who walks to school.

As already mentioned previously the data obtained from the school contained the learners' biographical information as well as academic performance information, while the learner questionnaires (done anonymously) contained the home environment factors. A one-to-one relationship between a student's experience at home and academic performance could therefore not be established directly.

A quartile represents 25% or a quarter of the data, in other words, the first quartile means that 25% of the learners departed their homes before 05:30 in the mornings, whereas the third quartile means that 75% of the learners departed before 06:40 in the mornings.

**Table 4.9: Departure times for school from home**

Min	1 <sup>st</sup> Quartile	Median	Mean	3 <sup>rd</sup> Quartile
04:00:00	05:30:00	06:10:00	06:10:27	06:40:00

The data in this Table 4.9 shows that the average respondent departed at 06:10 from home to school.

**Table 4.10: Arrival time at home in the afternoon**

Min	1 <sup>st</sup> Quartile	Median	Mean
06:00.00	14:30:00	15:00:00	15:15:25

The data obtained from the questionnaire indicated that on average the respondents arrived back at home at 15:15 from school and that 25% of the learners already arrived home at 14:30.

### 4.3.11 Nutrition

The respondents had to indicate how many meals they eat per day, do they take food to school and how often do they consume junk food.

**Table 4.11: Number of meals consumed per day**

Min	1 <sup>st</sup> Quartile	Median	Mean	3 <sup>rd</sup> Quartile	Max
1	3	4	3.62	4	5

The first quartile indicated that 25% of the learners consumed at least 3 meals a day and the third quartile indicated that 75% of the learners consumed 4 meals a day. The data obtained indicated that on average respondents ate 3.62 meals per day.

**Table 4.12: Frequency junk food is consumed**

Frequency of consumption	Frequency	Percent
Daily	19	12.67%
Weekly	78	52.00%
Monthly	46	30.67%
Never	5	3.33%
Not answered	2	1.33%

Frequency refers to the rate at which something occurs over a particular period of time or how often this occurs.

Table 4.12 represents how often respondent consumed junk food, 12.67% of the respondents consumed junk food daily, 52% consumed it weekly, and 30.67% of the respondent indicated that they consumed junk food on a monthly basis.

Do you bring food to school?		
	Male	Female
Yes	47	80
No	13	6
<NA>	1	3

Number of cases in table	150
Number of factors	2
Test for independence of all factors:	
Chisq=7.177168, df=2, p-value=0.02763743 Chi-squared approximation may be incorrect	
Fisher's Exact Test for Count Data data: Data1[,19] and data 1[,2] p-value = 0.02288379 Alternative hypothesis: two. sided	
Data1[,2] Data1[,19]                      male yes 0.7186464624 Female yes 0.6002631620	

From the data obtained, it was indicated that 52% of respondents consumed junk food on a weekly basis, with 12% who consumed it daily, and 30.67% who consumed it monthly.

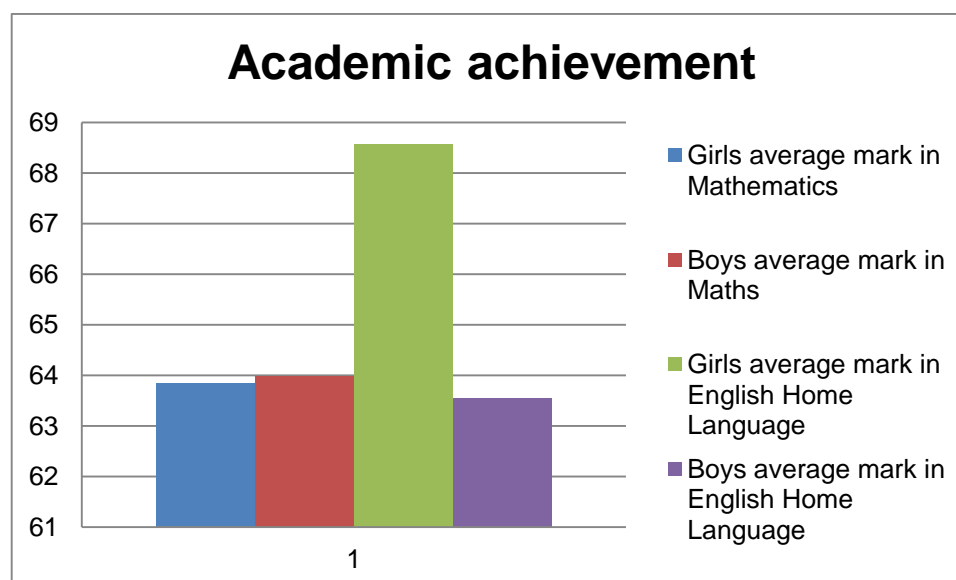
The Fischer test is used for classifying objects in two different ways; it is used to examine the significance of the association between the two kinds of classification. The p-value from the test is calculated as if the margins of the table are fixed, this leads under a null hypothesis of independence to a hyper numerical distribution of the numbers in the cells of the table (McDonald, 2014).

A chi-squared test can be used in this situation. However, the significance value it provides is only an estimate because the sampling distribution of the test statistic that is calculated is only approximately equal to the theoretical chi-squared distribution. The approximation is inadequate when sample sizes are small, or the data are very unequally distributed among the cells of the table, resulting in the cell counts predicted on the null hypothesis (the "expected values") being low. The usual rule of thumb for deciding whether the chi-squared estimation is good enough is that the chi-squared test is not suitable when the expected values in any of the cells of a contingency table

are below 5 or below 10 when there is only one degree of freedom. In fact, for small, sparse, or unbalanced data, the exact and asymptotic  $p$ -values can be quite different and may lead to opposite conclusions concerning the hypothesis of interest (McDonald, 2014). In contrast, the Fisher exact test is, as its name states, exact as long as the experimental procedure keeps the row and column totals fixed, and it can therefore be used regardless of the sample characteristics.

#### 4.3.12 Academic Achievement

The learners' academic marks in English Home Language and Mathematics were obtained from the school. The figure below gives insight into the averages of both female and male learners' academic achievement in the mentioned subjects.



**Figure 4.7: Academic achievements of learners**

From the data above, it is evident that female learners obtained higher marks in English Home Language and that boys obtained a slightly higher average in Mathematics.

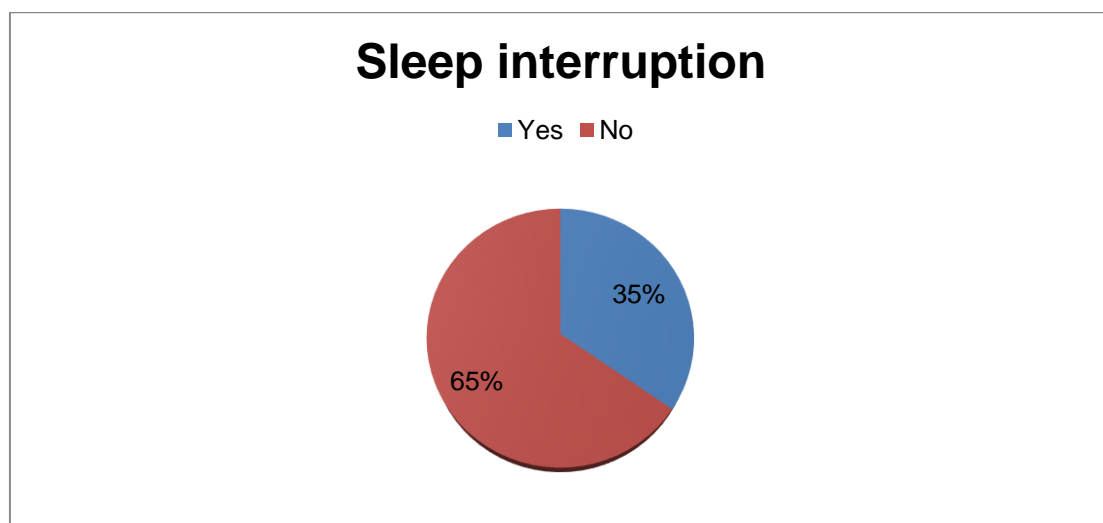
#### 4.3.13 Sleep

The respondents had to state what time they go to bed and to determine if the respondent's sleep is interrupted during the night.

**Table 4.13: Time respondents go to bed at night**

Min	1 <sup>st</sup> Quarter	Median	Mean	3 <sup>rd</sup> Quarter	Max
00:00:00	20:00:00	21:00:00	20:19:03	21:30:00	22:30:00

The first quarter indicated that 25% of the respondents go to bed at 20:00 and third quarter indicated that 25% of respondents go to bed at 21:30. The time respondents indicated that they went to bed at night was at from 20:00 till 22:30 with the average being 20:19.



**Figure 4.8: Sleep interrupted at night**

65% of the respondents indicated that their sleep was not interrupted during the night while 35% did indicate that their sleep was interrupted.

#### **4.3.14 Like and dislike about the respondent's home**

This was open ended questions where the respondents had to indicate what they like the most about their home and what they dislike the most about their home.



**Table 4.14: Likes and dislikes about home environment**

<b>Like the most about home</b>	<b>Frequency</b>	<b>Dislike the most about home</b>	<b>Frequency</b>
Feel safe	30	Nothing	66
Family	28	Fighting	35
Cared for, my needs are met	26	Doing chores	33
Mother	16	Neighbourhood	12
To play and watch TV	15	Noisy environment, barking dogs and shouting	11
Nothing	11	Parents not at home	7
Everything	10	Parents	7
Loved	10	Neighbours	6
Parents	9	Sibling	6
Peaceful	8	Violence	6
Quiet	8	Boring	3
It is home	7	Insects	3
My friends	7	Deceased parent	1
Spacious / Comfort	7	Unemployed parent	1
Neighbourhood	3	Hunger	1
The food	3	Illness	1

Table 4.14 indicated what respondents like and dislike about their home. The majority of respondents indicated that they liked feeling safe in their homes with family and that their needs are met. The majority of respondents also indicated that there was nothing they disliked, followed by fighting in the house and doing chores.

In order to make sense of the above the data needs to be interpreted based on the sub-research questions.

## 4.4 DATA INTERPRETATION

Bless, Higson- Smith and Kagee (2006:170); Mitchell and Jolley (2007:535) state that the largest portion of a research report consists of the findings, including the processing, analysis and interpretation of data in figures, tables or other forms of data representation. It is further stated that the researcher must convey to the reader, respondents and any other interested groups that the data were completely analysed and the findings of such. Babbie (2001: 475) and Rubin and Babbie (2001:78) further state that negative findings should be reported on as it is often just as important to know that two variables are not related as to know that they are.

The answer to the main research question of this study comes through the answers provided on the sub-research questions made to expand the details and contents in specific terms of the main question.

In specific terms, the sub-research questions (1.5) for the study are as follows:

1. Is there a relationship between poverty (2.2.1), family structure and scholastic performance? (2.2.2)
2. What is the influence of the type of dwelling on scholastic performance? (2.2.3)
3. What influence does nutrition (2.2.4) has on a learner's scholastic performance?
4. Does sleep deprivation (2.2.5) have a noticeable influence on learners' academic performance?

### 4.4.1 Sub-research question 1: Is there a relationship between poverty, family structure and scholastic performance?

A total of 150 respondents participated in this study, 61 (4,67%) male and 89 (59,33%) were female respondents. The majority of the participants (49.33%) reside in previously disadvantaged settlements to the north, east, west and northwest of Tshwane and commute to school daily, whereas 29.33% of learners reside in close proximity to the school; whereas

The family structure (2.2.2) of these respondents are as follows: 50% of the respondents stay with both parent, 38% were from single parent families, 4 % from step-parent families and 4% were staying with other family members, 2,67% stayed with older siblings and 1,33% stayed with neighbours or friends. In a study conducted by Mdanda (1997), it is concluded that there was a relationship between the parental-structure and pupils' academic achievement. These findings supported the notion of several researchers (Rice, 1981:40; Lurossa, 1988:451; Jubber, 1990:8) that learners from two-parent families achieved greater academic success than learners from single-parent and other type of family-structures.

The results of this study further revealed that 80% of the respondents' parents/caregivers were employed and 18.67% were unemployed. The employment sectors represented are the majority administration or Government employees (29.33%) and 13,33% are professionals, 9,33% are self-employed, 3,33% domestic workers, 9,33% are employed in the retail sectors and 22,67% are employed in other sectors.

Adebanjo (2014) concludes that a child's educational foundation is laid by a parent's level of education. This correlates with Mdanda (1997:107-108) who concludes that the occupational status of parents is one of the determining factors for learners to achieve academic success as children from unskilled labourers or lower socio-economic occupations had lower marks and lower academic success and that a relationship exists between parent-occupational status and pupils' academic achievement.

Gabela (1983:81), Prinsloo, et al. (1996:263) and Jubber (1990:7) all conclude that parental involvement and support gives rise to higher academic achievement of learners. This is also true of learners from poor socio-economic environments who did not reach their full academic potential due to financial constraints, and unsupportive home environments remained a constant factor in the school lives of its children. These findings were confirmed by Powell and Stellan (2010) and Van-Eijk and Degraaf (2012) who conclude that a child's academic performance is dependent on inputs of time, money, attention and resources of parents.

In a study conducted by Cobb-Clark and Moschion (2013) on the impact of family size (2.2.2) on scholastic achievement in Australia, it is concluded that parents do not seem to be fully aware of this disadvantage of increasing family-size from two to more than two children results in an objective disadvantage in children's achievement through test scores and an additional subjective disadvantage expressed by teachers (either because of stereotypes or because teachers have a more detailed view of children achievements). This conclusion is in line with the findings of Adekanmi (undated) and Mbatsane (2014) that family size and structure also has a domineering effect on academic performance within an African and South African context.

This study concluded no significant correlation between number of siblings and children living in the household, as some of the respondent's view cousins, nephews, and nieces as siblings. Twenty point six seven percent (20,67%) of the respondents had no siblings, 39,33% of the respondents had one sibling, 26% had two siblings and 14,01% had three or more siblings. Of these, 30% of the respondents were the youngest children in the household.

The 2016 General Household Survey reveals that the percentage of individuals that benefitted from social grants increased from 12.7% in 2003 to 29.7% in 2016. The study reveals that the number of respondents who received grants were 10.67% (8% were childcare grants, 067% were disability grants and 2% were old age grants). Forty-five point thirty-three percent (45,33%) did not receive grants and 44% of respondents indicated that they do not know if they received grants.

#### **4.4.2 Sub-research question 2: What is the influence of the type of dwelling on scholastic achievement?**

This study revealed that 69,33% of respondents lived in brick houses and 26% lived in flats in close proximity to the school. These houses are situated both in the previously white neighbourhood surrounding the school and informal settlements on the outskirts of Tshwane. None of the respondents lived in shacks, which could be explained by the 2016 General Household Survey, which revealed that the 13.5% of South African households were living in Reconstruction and Development Programme (RDP) or state-subsidised dwellings, this is an increase from 5% in 2002 and that

16,9% of households were female-headed and 11,0% were male headed households who lived in these dwellings (General Household Survey, 2016).

The 2016 General Household Survey (GHS) survey further reveals that the number of households connected to the electricity supply from the mains has increased from 77,1% in 2002 to 84,2% in 2016, 88,8% of South African households had access to piped water in 2016. This is reflected in the responses which revealed that 99,33% of the respondents had electricity and 93,55% had piped water in their houses.

This study concluded no significant correlation between dwelling type and academic performance.

#### **4.4.3 Sub-research question 3: What influence does nutrition have on a learners' scholastic performance?**

The General Household survey 2016 released by Statistics South Africa indicates that the percentage of household hunger decreased by 23,8% to 11,8%, while the percentage of individuals who experience hunger decreased from 29,3% to 13,4% during 2016. Studies conducted (2.2.5) by Chinyoka and Naidu (2013) and Nabarro, Menon, Ruel and Yosef (2012) conclude that poor nutrition, those who do not consume adequate amounts of key nutrients, including calcium, potassium and vitamin C, may be unable to work to their full potential at school.

Studies (2.2.4) conclude that dietary adequacy, variety and diet quality important to academic performance. It was further concluded that fruit and vegetable consumption and dietary fat intake, two critical nutritional concerns among children, were important for academic performance. The research supported previous research studies, demonstrating that academic performance varies according to the student's gender and that male students are more likely to perform poorly in terms of literacy. This relationship has been observed as steady across different levels of socio-economic status.

Studies conduct on the impact of nutrition on academic performance. A number of factors are recognized as affecting school performance including gender, ethnicity,

and quality of school and school experience, nutrition, child health, and socio-economic factors (2.2.5). Results of studies that have tested the association of academic outcomes with consumption of specific foods are consistent with those using an overall measure of diet. These results indicated that learners' consuming milk, vegetable, and fruit on a regular basis proved that these learners had better school-grades.

Two sets of data were analysed in this report. The first contained responses by learners to a questionnaire, and the second contained actual demographical information as well as performance information. From the second set of data, only gender seemed to yield differences in performance levels, with female learners performing slightly better than male learners. This is verifying findings of numerous research studies done nationally and internationally.

This result indicates that the null hypothesis of no association is rejected at a 5% level of significance, hence concluding that there is a difference between male and female learners with regards to the daily consumption of fruit. From Table 4.12, the largest value is related to male learners' not eating fruit on a daily basis, which is a possible cause for this association.

This could strengthen the association of the consumption of specific foods (2.2.4), such as milk, vegetables and fruit on a regular basis, on academic performance (Correa-Burrows, 2016) and the possible correlation of academic performance in reading, writing skill and mathematics (Hyde, et al., 2008).

The second set also reveal associations between male and female learners bringing food to school, that male learners are not bringing food to school and not consuming fruit on a daily basis. If the lower performance of male learners is to be attributed to the lacking possible nutritional intake, it should be justified by literature.

The results indicated that the null hypothesis of no association is rejected at a 5% level of significance, hence concluding that there is a difference between male and female learners with regards to bringing food to school. From Table 4.12 the largest value is

related to male learners not bringing food to school, which is a possible cause for the association.

#### **4.4.4 Sub-research question 4: Does sleep deprivation have a noticeable influence on learners' academic performance?**

Various studies have confirmed the link between sleep and academic performance (2.2.5). Curcio, Ferrara and De Gennaro (2006) conclude that sleep restriction resulted in impaired learning and memory performance (2.2.5). Boe, Hysing, Stormark, Lundervold and Siverten (2012) state that there may be confounding factors, such as socio-economic status known to be related to both sleep and school performance (Sirin, 2005). Sprenger (2005) concludes in a study that learners need about nine hours of sleep per night, but unfortunately many learners' biological clocks are reset by the school workload so it is difficult for them to fall asleep before midnight.

The results of this study were inconclusive as no association could be made. The data did reveal that the mean for sleep in male learners are 20:00 and for female learners are 20:30. It was also revealed that 29% (44 learners) are already in their transport before 6:00am, 38% (57 learners) depart for school between 6am and 6:30am, and 11% (16 learners) depart from their homes to school just after 7:00am, 3% (five learners) did not disclose a departure time, and 19% (28 learners) depart between 6:30 and 7:00am. It is difficult to conclude if learners do sleep the recommended nine hours per night as 33% of the learners revealed that their sleep is interrupted due to baby siblings crying, parents fighting, noisy neighbours, or gunshots being fired at night.

#### **4.4.5 Main Research Question**

The main research question for this study was to determine the impact of selected home environment factors on primary school learner academic performance. Although various international studies have concluded that home environmental factors do have an impact on academic performance, this study revealed that the majority of the selected home environment factors did not have a significant impact on the selected learners. It was however revealed that sleep deprivation and diet did

have an impact on the respondents' academic performance as is concluded in various studies.

For this study, 150 learners from a city school participated in the study. The learners are residing in neighbourhoods in close proximity to the school and in township areas to the north, east, and west of Tshwane. The number of boys that participated in the study were 61 and 89 girls participated in the study.

The results of the study revealed that 46% of respondents live with both parents. Eighty percent (80%) of the respondent's parents were full time employed and that 29,33% were employed by Government. The average number of children per household was 39,33%. Sixty-nine point thirty-three percent (69,33%) of respondents resided in brick houses and 26% in flats. The number of households that have electricity in their houses were 99,33% and 95,33% had running water in their houses. The average time that learners went to bed at night was 20:19:03 and departed for school at 06:10:27. Respondents were on average back at home in the afternoons at 15:15:25 with 50,67% of respondents making use of private transport to school and home. The study further revealed that the average amount of meals the respondents ate per day was 3,62 meals per day and that 52% of the respondents consumed junk food weekly.

#### **4.5 CONCLUDING REMARKS**

South Africa has a long history of inequality, poverty, and a struggling education system. Since 1994, the newly elected democratic Government has done a lot to eradicate the past inequalities. Parents from previously disadvantaged areas have moved their children to previously white schools in search of better education and opportunities for their children. Government improved the infrastructure in the previously disadvantaged areas and employment equity was implemented to eradicate the past injustices.

This study set out to ascertain the impact of selected home environment factors on primary school learners' academic performance. The study results for the sample group were inconclusive, as the data that was obtained from the school contained the



learners' biographical information as well as academic performance information, while the learner questionnaires (done anonymously) contained the home environment factors. A one-to-one relationship between a student's experience at home, and academic performance could therefore not have been established directly.

Could this mean that although various studies have determined the impact of socio-economic factors, parental support and family structure, nutrition and sleep, that the school institution's impact to learner performance is greater than the home environment factors?

The findings of this study however raised the issue of the perceived ideas the educators of the selected school had of the learners in the school. The results painted a whole different picture. Chapter 5 will give an overview of the recommendations made based on the findings of this study.

## **CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 INTRODUCTION**

The initial research aim and objectives (1.4) was to shed light on the impact of selected home environment factors on primary school learner performance. These objectives were to determine the relationship between poverty, family structure and scholastic performance, to ascertain the influence that the type of dwelling and nutrition has on a learner's scholastic performance and to determine if sleep deprivation had a noticeable influence on learners' academic performance.

The objectives further set out to compile evidence based on recommendations made on nutrition and sleep deprivation on the improvement of learner's academic performance.

Chapter 2 gave an overview of scholarly findings on family structure, poverty, nutrition and sleep and the influences thereof on academic performance. The contextual framework that was discussed were the environment (2.2.2), poverty (2.2.3), the influence of family structure (2.2.4), the impact of nutrition (2.2.5) on a child's academic performance and the influence of sleep (2.2.6) or the lack of sleep on academic success. The theoretical framework gave an overview of Maslow's hierarchy of needs (2.3.1) and Vygotsky's social constructivism theory (2.3.2). Concepts such as township (2.4.1), home environment (2.4.2), socio-economic factors (2.4.3), poverty (2.4.4), primary school (2.4.5) and nutrition (2.4.6) were clarified in the conceptual framework. The research methodology was discussed in detail in Chapter 3. The chapter started with a discussion on the rationale for empirical research (3.2), research design (3.3), paradigm (3.3.1), approach (3.3.2) and strategy (3.3.3), after which the data collection methods (3.4) and selection of the respondents (3.4.1) was presented. The researcher used a non-experimental quantitative survey research design grounded in a social constructivism paradigm.

Chapter 4 presented the results of the empirical investigation. The research process was discussed (4.2), followed by the data analysis (4.3) and the data interpretations

(4.4). Finally, in this chapter the limitations of the study were highlighted and concluding remarks made.

In the previous chapter, the discussion of the results of this study was presented by relating it to the existing literature. In this, a summary, conclusions and recommendations in relation to the research questions as outlined in Chapter 1 will be offered. This chapter will start by summarising the overall study, including the major findings related to the research questions, and thereafter conclusions will be drawn and recommendations will be made.

## **5.2 SUMMARY OF RESEARCH FINDINGS**

Herewith a summary of the research findings that contributed to this study.

### **5.2.1 Key scholarly review findings**

Various studies both nationally and internationally have been conducted on the impact of various factors on learner academic performance. From the literature it was evident that environmental factors (2.2.3) have an influence on the motivational state of learners in deprived areas, as learners' homes and neighbourhoods contributes well as absent parents, single-parent families, poor parental relationships, lack of parental support, and the poor financial state of parents are also contributing factors to learners not achieving academic success. The South African Government has done a lot to alleviate the inequalities that plagued our country. Poverty (2.2.1) alleviation projects have uplifted many families in previously disadvantaged areas. Nutrition (2.2.4) plays an important part in child development. Unfortunately, with obesity on the rise, and children not getting enough nutritional food, numerous studies concluded that nutrition has an impact on scholastic performance. School nutrition projects address the nutritional inadequacies that many children face on a daily basis. Studies have shown that children should get a minimum of nine hours of sleep (2.2.5) to perform optimally. It was also clear that children do not sleep enough, but that is understandable looking at the increase scholastic pressure that is on children. Various studies concluded that children should get a recommended nine hours of sleep per night as a lack of sleep is

associated with difficulties in attention, irritability, emotional instability, and low-threshold for frustration and distress (Sprenger, 2005).

### **5.2.2 Key empirical findings**

From this study, it was revealed that the respondents did not fall into the lower socio-economic sector (4.3.4) at the family structure mainly consist out of both parents in a smaller family situation (4.3.2). It was however also revealed that some learners did not reside with their biological parents during the week as they lived with a relative in close proximity to the school. The birth order (4.3.7) of the learners varied from being the eldest to the youngest.

This study concluded that more than three quarters of the respondents' parents were employed (4.3.4) full time with almost half of the parents that were employed in professional or government sectors. This study revealed that for the selected sample, the home environment factors such as poverty (4.3.3), family structure (4.3.2) and dwelling type (4.3.8) did not have a significant influence on learner performance.

This study further revealed that nutrition (4.3.11) had an influence on learner academic performance. It was further concluded that from literature, fruit and vegetable consumption and dietary fat intake, two critical nutritional concerns among children, were important for academic performance. This research supported this notion as it was concluded that boys consumed less fruit and vegetables and dairy on a daily basis, confirming that academic performance varies according to the student's gender and that male students are more likely to perform poorly in literacy (Florence, Asbridge & Veugelers (2008), Correa-Burrows (2016). This relationship has been observed in this study. The notion that junk food impacted on learners' maths and reading marks was strengthened in this study as the results of this study correlated with other studies that nutrition or diet had an effect on the learner performance (Belot & James, 2009). The results from this study indicated that the lack of enough sleep hours per night had an influence on learner performance.

On conclusion of this study the researcher was surprised by the fact that results of this study was not what was anticipated and that the data that was supplied by the learners and the school data did not correlate.

### **5.3 RESEARCH CONCLUSIONS**

The researcher aimed to answer the following main research question, (1.5): “What is the impact of selected home environment factors on primary school learners’ academic performance?”

In answering the main research question, four research objectives (1.5) were formulated, and will be answered in the following section using the founding of the literature review and empirical investigation.

#### **5.3.1 Conclusions related to research objective one**

Research objective one (1.5) sets out to determine the relationship between poverty, family structure, and scholastic performance.

According to the literature review, poverty (2.2.3) and family structure (2.2.4) have an influence on scholastic performance. As these aspects go hand in hand, the main provider in a single-parent family has increased levels of financial stress. The results of this study painted a different picture from the preconceived picture held in the selected school that the majority of the learners were from single-parent, financially constrained families. The results indicated that the majority of the respondents’ came from both-parent families and 80% of the respondents’ parents were full-time employed. Due to the unexpected stable home environments of the respondents in this study, the extent of the potential negative effect of disrupted family structure, poor socio-economic situation, family size and poverty could not be established.

#### **5.3.2 Conclusions related to research objective two**

Research objective two (1.5) focused on the influence of the type of dwelling on scholastic achievement.

The type of dwelling is closely associated with poverty. It is widely assumed that people living in informal settlements live in shacks. During the last few years, the South African Government has built houses and provided electricity and water and sanitation infrastructure in the previously disadvantaged areas. The results of this study revealed that only 4.67% (seven respondents) lived either in a room or with another family. The rest of the respondents lived in a house or flat. The findings of this study also revealed that 99.33% had electricity in their houses and 93.55% had water in their houses. It can thus safely be assumed that, in the case of this study, the factor type of dwelling had insignificant influence on learners' scholastic performance.

### **5.3.3 Conclusions related to research objective three**

Research objective three (1.5) focused on the influence of nutrition on a learners' scholastic performance.

According to the literature review on nutrition (2.2.5), studies conducted in Canada, Chile, Iceland, the Netherlands, Norway, Sweden and New Zealand concluded that a positive association existed between nutrition and scholastic performance. A study conducted by Florence, Asbridge and Veugelers (2008) concluded that fruit and vegetable consumption and dietary fat intake are important for academic performance and that academic performance varies according to the student's gender and that male students are more likely to perform poorly in terms of literacy.

It was further revealed that this relationship has been observed as steady across different levels of socio-economic status. The results in this study confirmed these as male learners' consumed less fruit than female learners and that male learners' academic performance appears to be generally lower than female learners (4.3.12).

### **5.3.4 Conclusions related to research objective four**

Research objective four (1.5) focused on the impact sleep deprivation has on learners' academic performance.

Literature review on sleep (2.2.6) concluded that children need on average nine hours of sleep per night to function optimally the next day. Due to various factors children do not sleep the recommended hours per night. Studies have concluded that sleep deprivation have an influence on academic performance (2.2.6). The results of this study revealed that the mean for the time boys go to bed is 20:00 and for girls are 20:30. A third (33%) of the respondents revealed that their sleep were interrupted (4.3.13) during the night, reasons that were offered stated violence, fighting, crying, noisy neighbours and barking dogs as possible causes for the interruption of their sleep.

It was also found that 29% of the respondents were already on their transport before 06:00am in the morning (4.3.10). As respondents' sleep was interrupted during the night and the respondents had to wake up early, sleep deprivation could have a possible influence on academic performance. From the researcher's personal experience and observation, a number of learners look tired and sleepy during class time, as some learners will also lie on their arms and sleep the first few periods in the morning.

This study thus revealed and confirmed that particularly the home environment factors nutrition and sleep deprivation can have a marked effect on scholastic performance.

## **5.4 RECOMMENDATIONS**

Looking at the results of this study, the researcher states the following recommendations based on the findings.

### **5.4.1 Recommendation on the school quintile system**

The current school quintile system needs to be taken into review as schools annually experience an influx of learners due to parents relocating, looking for employment opportunities etc., and the migration to city schools, as parents are looking for better education for their children.

Currently schools are grouped in quintiles based on the surrounding infrastructure. In poorly infrastructure areas, the schools are categorised in Quintiles 1 to 3 schools and are wholly subsidised and no school fees can be levied, and schools in more affluent areas, Quintile 4 and 5 schools are only partially subsidised by Government and obliged to raise their own funds and may levy school fees.

Therefore, it is recommended that the school quintile system be re-evaluated as parents of learners from poor and disadvantaged areas are sending their children to city schools, which was previously seen as schools in affluent areas and are thus levying school fees. The selected sample school is one of many such schools in the Tshwane metropolitan area.

#### **5.4.2 Recommendation on the validity of school data on learners**

This study surprisingly revealed that the learner's data and the school's data do not correlate as parents supplied information which was not confirmed by the learners. It was found that most learners do not reside with their biological parent/s and resides with a relative in the school feeding area. It is recommended that a more comprehensive and reliable system should be used to verify information as it has a direct impact on the learners should a situation arise which the parent needs to be informed immediately and the contact details are not correct. Parents enrol their children in the schools of their choice. Schools should therefore be more inclusive and no child should be turned away based on their area of residence and/or if the parent is able to pay the school fees. Based on the first recommendation (5.4.1), schools should disclose their enrolled learners' areas of residency, and receive state funding based on the verified information.

#### **5.4.3 Recommendation on learner nutrition**

The World Health Organisation defines the double burden of malnutrition as the coexistence of under-nutrition along with overweight and obesity. Childhood obesity is one of the most serious public health challenges of the 21<sup>st</sup> century. Globally, in 2016 the number of overweight children under the age of five years is estimated to be



over 41 million. Nearly half of all overweight children under 5 lived in Asia and one quarter lives in Africa.

It is recommended that specific guidelines should be provided to parents about economical lunchbox ideas. Parents should be supplied with lists of foods best to pack in lunchboxes and food that is not allowed. Schools should further monitor the food provided at tuck shops, as the food provided should sustain learners' energy and be nutritious. Food high in saturated fats and sugar should not be allowed at school tuck shops. Children should also be educated about nutrition and better or alternative choices they can make.

Lunches that are supplied as part of the school nutrition program should be monitored to ensure that it is nutritious, low in sodium and that a variety of fruit and vegetables are included in the meal.

#### **5.4.4 Recommendation on sleep deprivation**

Studies have concluded that children should sleep on average nine hours per night. Unfortunately, due to increase academic pressure and work load more learners go to bed later. It is therefore recommended that schools adhere to guidelines on the amount of homework given to learners daily. It is further recommended that parents should ensure that their children have a set routine regarding sleep patterns. The use of electronic equipment, such as television, computers and cellular phones prior to sleeping time should be limited as it affects sleep.

#### **5.4.5 Recommendation on learner performance data**

This study revealed the impact of home environment factors on scholastic performance. Learner performance data can be an indicator of environmental problems and the home environment factors behind academic performance. The aim of learner performance data is to improve and monitor the quality of education.

It is therefore recommended that schools should be more scrupulous with learner performance data as it could be a possible indicator of household problems or the

quality of education. If it is found that the decline is due to quality of education, the school management team should act immediately to assist the necessary educators with the necessary skills to enable better quality of education.

A proactive plan of action should be put in place by the school for those learners whose marks decreased. An educator could talk to the learner and the parents to try and determine the possible causes for the decrease in marks. Remedial classes or remedial exercises should be given to the learners to assist in the areas of need. Should it be determined that the cause be due to home environment factors necessary assistance should be provided either by the school or other entities.

## **5.5 AVENUES FOR FURTHER RESEARCH**

This study has opened up new priorities and avenues for research. The researcher realised that due to the annual influx of learners from other provinces and previously disadvantaged areas to city schools in Gauteng, some of these learners were from schools where resources were limited and from low social economic households. Future studies could assist in finding ways to successfully integrate these learners with barriers and the necessary lack of prior knowledge for a specific grade, to gain the skills needed to achieve academic success in that grade.

Nutrition and diet remain a major problem and with the obesity rate increasing in children, practical and economical lunchbox options for the middle to lower class is still lacking. Thus further studies could determine the extent and main causes of learner obesity at primary schools in South Africa.

## **5.6 CONCLUDING REMARKS**

This research has proved valuable to me as it opened my eyes to the fact that children are products of their environment and that as teachers we tend to look at children and base our perception on preconceived ideas. It is assumed that African children are all poor and that their parents do not provide support.

I started my research with preconceive ideas regarding the learner home environment factors, expecting that the data will verify these perceptions. Great was my surprise when the unexpected was revealed. The data given to the school by parents were incomplete or not truthfully. The saying “don’t judge a book by its cover” truly applied to me as I had the notion that these learners were all underprivileged and due to their home environment factors they were not able to achieve to their full academic potential. The dwelling type and their socio-economic situation at home did not have a great influence in this study, but nutrition and sleep had a minor influence.

This experience has taught me that preconceived ideas are blinding one for the surprise that might be idling waiting there to be discovered. “Truth only reveals itself when one gives up all preconceived ideas” (Shoseki, undated).

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## APPENDIX A1 – PARENTAL INFORMATION/CONSENT LETTER

14 May 2017



Dear Parent

Your child is invited to participate in a study entitled "The impact of home environment factors on primary school learner's academic performance". I am undertaking this study as part of my master's degree research at the University of South Africa. The purpose of the study is to determine the impact of home environment factors on primary school learners' academic performance and the possible benefits of the study are the improvement of learners' academic performance. I am asking permission to include your child in this study because of the valuable contribution your child can add due to the diverse home environment factors of learners. I expect to have 186 other children participating in the study.

If you allow your child to participate, I shall request him/her to

- Take part in a survey

Any information that is obtained in connection with this study and can be identified with your child will remain confidential and will only be disclosed with your permission. His or her responses will not be linked to his or her name or your name or the school's name in any written or verbal report based on this study. Such a report will be used for research purposes only.

There are no foreseeable risks to your child by participating in the study, however your child will be completing a questionnaire, he/she might feel embarrassed to disclose personal information. Your child will receive no direct benefit from participating in the study; however, the possible benefits to education are that changes could be made to improve learners' academic performance. Neither your child nor you will receive any type of payment for participating in this study.

Your child's participation in this study is voluntary. Your child may decline to participate or to withdraw from participation at any time. Withdrawal or refusal to participate will not affect him/her in any way. Similarly you can agree to allow your child to be in the study now and change your mind later without any penalty.

In addition to your permission, your child must agree to participate in the study and you and your child will also be asked to sign the assent form which accompanies this letter. If your child does not wish to participate in the study, he or she will not be included and there will be no penalty. The information gathered from the study and your child's participation in the study will be stored securely on a password locked computer in my locked office for five years after the study. Thereafter, records will be erased.

If you have questions about this study please ask me or my study supervisor, Prof E.C. du Plessis, Department of Curriculum and Instructional Studies, College of Education, University of South Africa. My contact number is 076 820 2628 and my e-mail is sunet.nell123@gmail.com. The e-mail of my supervisor is dplesec@unisa.ac.za. Permission to undertake this survey has been granted by the Department of Basic Education, The Principal and School Governing Body and the Ethics Committee of the College of Education, UNISA.

You are making a decision about allowing your child to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study. You may keep a copy of this letter.

Name of child: \_\_\_\_\_

Sincerely

Parent/guardian's name (print)

SUNET NELL

Researcher's name (print)

Parent/guardian's signature:

Researcher's signature

Date:

2017.05.14

Date:

University of South Africa  
Pretorius Street, Midrand, Gauteng, City of Johannesburg  
PO Box 392 UNISA 2003 South Africa



## APPENDIX A2 – LEARNER ASCENT LETTER/FORM



14 May 2017

Dear learner,

My name is Teacher Sunet Nell and would like to ask you if you would help me by filling in a questionnaire. I am trying to learn more about how your situation at home can improve your performance at school.

If you agree to do this, we will do an activity where you would need to fill in a questionnaire. I will not ask to you to do anything that might hurt you or that you don't want to do.

I will also ask your parents if you can take part. If you do not want to take part, it will also be fine with me. Remember, you can say yes or you can say no, and no one will be upset if you don't want to take part or even if you change your mind later and want to stop. You can ask any questions that you have now. If you have a question later that you didn't think of now, you can ask me at any time.

Please speak to mommy or daddy about taking part before you sign this letter. Signing your name at the bottom means that you agree to be in this study, but your name will not be used or make public. A copy of this letter will be given to your parents.

Regards

Teacher Sunet Nell

Your Name	Yes I will take part	No I don't want to take part
		

<b>Name of the researcher</b>	Ms Sunet Nell
<b>Date</b>	
<b>Witness</b>	



## APPENDIX B – LETTER TO THE PRINCIPAL AND CONSENT FORM



10 August 2016

Mr. J.A. Deyssel

Principal

Laerskool Eben Swemmer Primary

E-mail: ebies@lsebenswemmer.co.za

Dear Mr. Deyssel

**REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT LAERSKOOŁ EBEN SWEMMER:  
*THE IMPACT OF HOME ENVIRONMENT ON PRIMARY SCHOOL LEARNER'S ACADEMIC PERFORMANCE***

I, Sunet Nell, am doing research with Prof. E.C du Plessis a Professor in the Department of Curriculum and Instructional Studies towards a MEd Degree at the University of South Africa.

The aim of the study is to investigate the impact of home environment factors on primary school learners' academic performance.

Your school, Laerskool Eben Swemmer has been selected because of the diversity of learners' home environments. The study will entail learners completing questionnaires, in private, regarding home environment, family structures, nutrition and sleep patterns of learners. The name of the school or the name of the learners will not be mentioned.

The benefits of this study are to determine if the above-mentioned factors have an impact on learners' academic performance and possibly implement strategies accordingly to assist the school and Department of Basic Education to implement actions to enhance academic performance of learners.

Potential risks are that learners' might feel embarrassed by their socio-economic circumstances. Feedback procedure will entail a written summary of the findings and if required a presentation of these findings.

Yours sincerely

Ms Sunet Nell



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PO Box 392 UNISA-0003 South Africa  
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4153  
[www.unisa.ac.za](http://www.unisa.ac.za)

**CONSENT TO PARTICIPATE IN THIS STUDY (Return slip)**

I, J. A. DEYSEL the Principal of LIS ESEN WEMMER, confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that learner participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the questionnaire.

I have received a signed copy of the informed consent agreement.

Principal: Name & Surname (please print) J. A. DEYSEL

[Signature] 2016.09.13  
Signature Date

Researcher's Name & Surname (please print) SUNET NEU

[Signature] 2016.09.13  
Researcher's signature Date

## APPENDIX C – PERMISSION FROM THE DISTRICT OFFICE



Enquiries: MP NTSHANGASE  
Tel: 012 543 1203  
Reference: 22/16/1

**TO :** MS SUNET NELL  
**FROM :** MS SL MOLOBI  
DISTRICT DIRECTOR: TSHWANE NORTH  
**DATE :** 21 NOVEMBER 2016  
**SUBJECT :** PERMISSION GRANTED TO CONDUCT RESEARCH

Dear Madam

It is our pleasure to inform you that the District Office grants you permission to conduct research at Eben Swemmer Primary School in 2017 from 06 February to 29 September. The research topic is: "The impact of home environment on Primary School learner academic performance".

You may only conduct the research after contact time to protect teaching and learning activities. All activities pertaining to the research must be made in consultation with the principal.

You are personally responsible for providing and utilizing your own research resources. Participants' names must not appear in the research report and all appropriate ethical measures must be implemented to safeguard them.

TN District expects you to submit, upon completion, a summary of your research findings as stipulated in clause No. 11 of the letter of approval to conduct research in the GDE.

Tshwane North District appreciates your contribution towards the enhancement of education in the province and anticipates your success with your research project.

Regards

A handwritten signature in black ink, appearing to read "SL Molobi".

MS SL MOLOBI  
DISTRICT DIRECTOR: TSHWANE NORTH

DISTRICT: TSHWANE NORTH  
Tel: (012) 543 1479, Cell: 083 389 2668, Fax: 086 771 6195 | Email: Shirley.Molobi@gauteng.gov.za  
Wonderboom Junction Mall, 1<sup>st</sup> Floor, Corner Lavender & Lavender West Road,  
Wonderboom, 0096, Private Bag 2040, Pretoria, 0001  
[www.education.gauteng.gov.za](http://www.education.gauteng.gov.za) | Call Centre: 0800 008 178



## APPENDIX D – PERMISSION FROM THE GAUTENG DEPARTMENT OF EDUCATION



For administrative use:  
Reference no. D2017 / 301 A  
Enquiries: Diane Bunting 011 843 6503

**GAUTENG PROVINCE**  
EDUCATION  
REPUBLIC OF SOUTH AFRICA

### GDE AMENDED RESEARCH APPROVAL LETTER

Date:	21 September 2016
Validity of Research Approval:	06 February 2017 to 29 September 2017
Previous GDE Research Approval letter reference number	D2017 / 230 dated 26 August 2016
Name of Researcher:	Nell S.
Address of Researcher:	272 Garret avenue; Queenswood; 0186
Telephone / Fax Number/s:	076 820 2628
Email address:	sunet.nell123@gmail.com
Research Topic:	The impact of home environment factors on Primary School learner academic performance
Number and type of schools:	ONE Primary School
District/s/HO	Tshwane North

#### **Re: Approval in Respect of Request to Conduct Research**

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved. A separate copy of this letter must be presented to the Principal, SGB and the relevant District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted. However participation is VOLUNTARY.

The following conditions apply to GDE research. The researcher has agreed to and may proceed with the above study subject to the conditions listed below being met. Approval may be withdrawn should any of the conditions listed below be flouted:

#### ***CONDITIONS FOR CONDUCTING RESEARCH IN GDE***

1. The District/Head Office Senior Manager/s concerned, the Principal/s and the chairperson/s of the School Governing Body (SGB.) must be presented with a copy of this letter.
2. The Researcher will make every effort to obtain the goodwill and co-operation of the GDE District officials, principals, SGBs, teachers, parents and learners involved. Participation is voluntary and additional remuneration will not be paid;

*Makhado*  
2016/09/21

1

**Making education a societal priority**

#### **Office of the Director: Education Research and Knowledge Management ER&KM)**

9<sup>th</sup> Floor, 111 Commissioner Street, Johannesburg, 2001  
P.O. Box 7710, Johannesburg, 2000 Tel: (011) 355 0506  
Email: David.Makhado@gauteng.gov.za  
Website: www.education.gpg.gov.za

## APPENDIX E – ETHICS APPROVAL CERTIFICATE



### UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE

Date: 2017/02/15

Dear Mrs Nell,

**Decision:** Ethics Approval from  
2017/02/15 to 2019/02/15

Ref: **2017/02/15/42721172/18/MC**

Name: Mrs S Nell

Student no: 42721172

#### Researcher:

Name: Mrs S Nell

Email: sunet.nell123@gmail.com

Telephone: 0768202628

#### Supervisor:

Name: Prof E Du Plessis

Email: dplesec@unisa.ac.za

Telephone: 082 809 3903

#### Title of research:

**The impact of selected home environment factors on primary school learner performance – A case study**

**Qualification:** M Ed in Socio-Education

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period 2017/02/15 to 2019/02/15.

*The medium risk application was reviewed by the Ethics Review Committee on 2017/02/15 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and



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www.unisa.ac.za

## APPENDIX F – LEARNER QUESTIONNAIRE

### Learner Questionnaire

*Thank you for answering this questionnaire. Your answers are safe with us, and you must please be honest.*

*You only have to mark your answer with X in the correct box. If there is no box, just fill in your answer.*

#### **Personal and Family Details:**

Are you a boy or girl?

Boy	Girl
-----	------

1.1 Who cares for you at home? Choose ONE and mark with X

Both parents (mother and father)	
Single mom/dad	
Mom/Dad with Step-parent	
Grandparents	
Other family member – uncle, aunt	
Older brother/sister (no parents/parents passed away)	
Neighbours/Friends	

1.2 Does the caregiver you indicated above work full-time?

Yes	No
-----	----

If Yes, what does your main caregiver do, where do they work? Mark only ONE block with X

Self-Employed (sells products/food etc)	
Domestic Worker	
Retail – cleaner, packer, cashier	
Administration/ Government	
Professional – nurse, teacher	
Other – please specify:	

1.3 Does your main caregiver receive a grant from Government?



If **YES**, Please tick the grant received:

Yes Don't know No

Old Age Pension Grant	
Disability Grant	
Child Care Grant	

1.4 How many other children are living with you at home? \_\_\_\_\_

1.5 Are you the youngest child at home?



Yes	No
-----	----

**Residential information:**



2.1 Where do you live?

Brick house	Room	Shack	Staying with another family	Flat
-------------	------	-------	-----------------------------	------

2.2 Do you have electricity at home?

	<input type="checkbox"/>		<input type="checkbox"/>
--	--------------------------	---	--------------------------

2.3 Do you have running water at home?

	<input type="checkbox"/>		<input type="checkbox"/>
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2.4 How far do you stay from school?

Atteridgeville	19 km	
Pretoria-West / Danville / Hermanstad	8km	
Capital Park	5km	
Arcadia / Sunnyside / City	5km	
Gezina / Rietfontein / Wonderboom South/ Villieria	2km	
Waverley / Queenswood / Moregloed	6km	
Pretoria North / Amandasig / Teresapark	12km	
Silverton	12km	
Eersterust / Mamelodi	30km	
Nelmapius	27km	
Soshanguve	33km	
Ga-Ranguwa / Rosslyn	31km	



2.5 How do you get to school most of the time?

Parent(s)	Private transport	Public transportation	Bicycle	Walk
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2.6 At what time do you depart from home for school? \_\_\_\_\_

2.7 What time do you get home in the afternoon? \_\_\_\_\_

### 3. Nutritional Information

3.1 How many meals do you eat per day? Only choose 1 option

How many meals per day?	Meal type	X
1	Breakfast / supper only	
2	Breakfast and supper	
3	Breakfast, lunch, supper	
4	Breakfast, snack, lunch, supper	
5	Breakfast, snack, lunch, snack, supper	



	
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3.2 Do you bring food to school?

If No, why not?

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3.3 Do you eat any/or all of the following on a daily basis?

		
Meat/fish		
Vegetables		
Fruit		
Dairy products – milk, cheese, yoghurt		

3.4 How often do you eat junk food (pizza, fried chicken, hamburgers)?

Every day	
Once a week	
Once a month	
Never	

#### **4. Sleep Information**

4.1 What time do you usually go to bed at night during school terms? \_\_\_\_\_

4.2 Is your sleep often interrupted ? YES/NO\_\_\_\_\_

If yes, why?

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#### **5. Your general comments**

5.1 What do you particularly **like** about your home?

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5.2 What do you particularly **dislike** about your home?

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Thank you for completing this questionnaire
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## APPENDIX G – LANGUAGE EDITOR LETTER



(2015/375453/07)

Date: 19/06/2018

Dear Sir/Madam

This letter is to certify that I, Sarah Louise Cornelius, of Regcor Enterprises Pty Ltd, have completed the full editing of the thesis titled THE IMPACT OF SELECTED HOME ENVIRONMENT FACTORS ON PRIMARY SCHOOL LEARNER'S ACADEMIC PERFORMANCE – A CASE STUDY by Sunet Nell.

I have ten years of experience in the field, having worked on multiple doctorates. Currently, I am a member of the Professional Editor's Guild (PEG).

All changes and recommendations have been made.

*Kind Regards*

**Sarah Louise Cornelius**

**Professional Editor's Guild**

Associate Member

Membership number: COR003

**Regcor Enterprises Pty Ltd**

Registration no: 2015/375453/07

Contact no: 0768156437

Email: sarah@regcor.co.za